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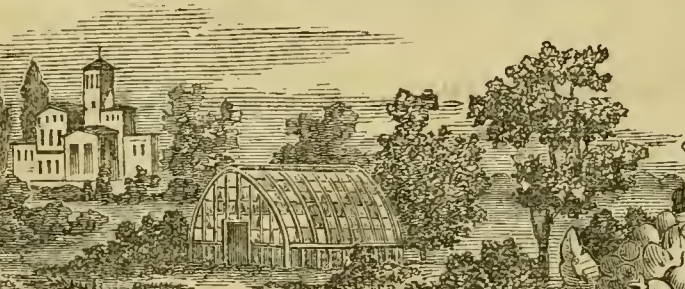
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THE
GARDENER'S MONTHLY.
DEVOTED TO
Horticulture, Arboriculture, Botany & Rural Affairs.

THOMAS MEEHAN, Editor.
W. G. P. BRINCKLOE, Publisher.

JANUARY, 1867. VOL. IX. --NO. 1.

Hints for January.

We are now entering on our ninth annual volume; and as we shall most probably, in view of the increased attention given to horticulture with the return of peace, have a heavier list of new subscribers than we have had for many years, we may state here, that the object of these hints is not to teach the art of gardening. Experience has shown that calendars and monthly directions, given as absolute guides to practice, are worse than useless. As well may we think to make an artist by guiding the hand that holds the pencil or the brush. It is only by one's thinking for himself, and putting into effect the results of his own thought, that the operations of gardening can be successful. Our aim is, in these Hints, therefore, to furnish food for thought, at about such times or seasons that such thought would be timely for the usual seasons for special practices.

Our circulation, we may say, is world-wide. Not only do we reach the chief cities of Europe on the East, but beyond the Pacific to the Sandwich Islands and Japan; and from the highest Northern latitudes on this continent to the South American States. We wish to make our remarks interesting to every reader. Over so vast an extent of territory it is evident the most practical work will be that which, while giving the usual routine of practical operations, at the same time furnishes the reasons on which they are founded, so that all can apply them to the varying and continually changing circumstances.

Again, Horticulture is not altogether an art, but a progressive science. The wisest of us have to be continually unlearning things in which we once implicitly believed; and learning new facts, as the science develops itself. Were it not so, one series of "calendars," written for one year, would do forever, and need only an annual reprint as the first edition became exhausted. Hence, though much that we may say in these Hints is, necessarily, like what we have had to say before, we always re-write, in order to add or change views that we have formerly entertained. We therefore trust that even the oldest of our readers will always find something to interest them in the perusal of these remarks preliminary to each monthly issue.



FLOWER-GARDEN AND PLEASURE-GROUND.

The chief enjoyment in this department at this season, lies in planning out the necessary improvements, arrangements, and work to be done during the next active season. In gardening there are two styles of flower-growing,—one which looks to the enjoyment of beautiful flowers individually; the other for the effects which color gives to the beauty of one's ground. In the first place, hardy Herbaceous Plants, Annuals, Bulbs, and such like plants, are to be employed, and the flower-beds for them must be arranged with this view, so as to afford opportunities for individual examination. There is nothing better for this than long, narrow borders; such, for instance, as the narrow belts along the walks of a vegetable garden.

For flowers for effect, the mass system, of course, is to be preferred. The flowers are selected and arranged with regard to their harmonious tints of coloring one with another, and the beds must be arranged to suit the ideas sought to be accomplished. The shape of the various beds is of no account in this system of gardening. Hearts, pears, stars, crosses, and so forth, are not recognized when filled with flowers; but they have to be arranged one with regard to the other, that the effect we design shall be fully accomplished.

It is a very nice winter study for ladies, and one

which in England engages the attention of every one, from Queen Victoria down, to arrange in winter the beds, and the flowers to fill them, for the summer decorations of the garden. In most cases, the ladies first ascertain what plants can be procured,—Geraniums, Petunias, Cupheas, or various leaf-plants,—familiarize themselves with their various shades of colors, and then, with a rough sketch of the beds to be filled before them, mark on each what is to go in next spring. This is then handed to the gardener time enough for him to get a supply ready. This practice has been gradually growing in England for the past thirty years, until now it is the universal winter employment of all ladies of taste; and to this great interest in flower-gardening by the English ladies, is the present high state of the flower-gardening department there to be mainly traced.

Pruning should be completed as soon as possible. Some judgment is required in pruning flowering shrubs, Roses, &c., although it is usual to act as if it were one of the most common-place operations. One of the most clumsy of the hands is commonly set with a shears, and he "goes through" the whole place, clipping off every thing indiscriminately. Distinction should be made between those flowering shrubs that make a vigorous growth, and those which grow weakly; and between those which flower on the old wood of last year, and those which flower on the new growth of next season, as the effect of pruning is to force a strong and vigorous growth. Those specimens that already grow too strong to flower well, should be only lightly pruned; and, in the same individual, the weakest shoots should be cut-in more severely than the stronger ones. Some things, like the Mock Oranges, Lilacs and others, flower on the wood of last year. To prune these much now, therefore, destroys the flowering; while such as Altheas, which flower on the young wood, cannot be too severely cut-in, looking to that operation alone.

In pruning Roses, the Fall-blooming kinds, which flower on the new growth, may be pruned as severely as we wish; in fact, the "harder" they are cut-in, the better. In this class are the Noisette, Bourbon, Tea, China, and Hybrid Perpetual and Perpetual Moss. Without considerable experience, it is difficult for the amateur to distinguish these classes. The best way to get over the difficulty is to obtain the catalogues of the principal Rose-growers, in which each kind is usually classified. Amateurs should pay more attention to the scientific—if we may so term it—study of the Rose, and its classification and general management. No class of flowers is more easily understood, and no one affords so rich a fund of perpetual interest.

Hyacinths, or other hardy bulbous roots that may not have yet been planted, may still be put in where the ground continues open. The beds of all such bulbs should be slightly protected with manure or litter, and be carefully watched for mice and vermin, which are likely to avail themselves of the shelter and feed on the roots.

Lawns that are impoverished by several seasons' mowings, will be improved by a good top-dressing. This may be applied any time after the leaves are gathered up, and before the snow falls. Soot, wood-ashes, guano, or any prepared manure, is best for this purpose. Barnyard-manure is objectionable, as generally containing many seeds of weeds.

Evergreens set out last fall in windy or exposed situations, will be benefited by a shelter of cedar branches, corn-stalks, or mats, set against them. Whether hardy or tender, all will be benefited thereby.

Hedges that have not had their winter dressing, should be attended to. If the remarks we have before made on hedges have been attended to through the summer, there will be very little now to do. We have said that pruning in summer weakens a plant, while pruning in winter strengthens it; and so, as hedges naturally get spoiled by growing vigorously at the top, and weakly at the sides, they should be severely summer-pruned at the apex, and winter-pruned near the base. Now will be the time to see to the latter, taking care not to make it too narrow. A good hedge should be nearly four feet wide at the base, and be cut into a point at the top.

Manure for flower-beds, borders, etc., may be hauled convenient to where it is likely to be wanted in spring; many spread it on at once; but if the soil is frozen very thick, it prevents the early thawing of the soil in the spring, and so no time is gained.

Very small plants in borders or on the lawn, or larger plants that may have been set out the past season, should be mulched with any thing that will prevent the ground thawing, and so, the plant "drawing out." Most readers have done this in the fall, but there is good to be done by it yet by those who have neglected it till now. Keep a sharp look-out for mice under the litter, however, where it is wise from the value of the specimen to run no risks; brown paper, afterwards tarred, may be wrapped around the stems as far as the litter covers them.

A great deal of trenching and subsoiling can be done through the winter if manure be thrown over the surface before it is frozen too deep; a little snow even, dug in, will not injure the operation, as we find in our own experience.

VEGETABLE GARDEN.

Towards the latter end of the month, in the Southern States, there will be little time for study; spring will be opening, and hard work will be the order of the day. Peas and Potatoes must be planted as early as the season will admit. Even here in Pennsylvania we have planted Peas to advantage during a favorable "spell" in the first week in February. In sowing Peas, a common error is to sow them too thick: each Pea should be nearly two inches apart if the soil is rich, in order to have a very satisfactory crop of large pods. We hate to see the best half of mankind, namely, womankind, imposed upon by those gardeners who grow plenty of pods with no Peas in them for the dear creatures to "shell."

Asparagus beds may have the soil raked off them a little, if it was thrown up from the alley-way in the fall. It allows the sun to get to the roots earlier, and the crop is forwarded thereby. If the beds are poor, they may have a dressing of guano, or superphosphate, which has been found very beneficial to this crop. It has become almost a stereotyped recommendation to have "salt applied," but there is a good deal of the humbug about it. In dry, sandy soils it does a little good, and a little in whatever manure is applied is acceptable to them, but more has been made of the salt theory with Asparagus than it deserves. Asparagus beds may be got ready as soon as the ground is sufficiently dry to admit of working. A deep soil is all-important; two feet, at least, and a situation should be chosen that is warm, and yet not too dry. The roots should be set about four inches under the surface, twenty inches or two feet from each other, and the rows eighteen or twenty inches apart. Large, fine Asparagus cannot be obtained by crowding the plants; strong two and three year old plants are the best; although in good, rich soil, one year old plants will often bear a good crop the year after planting. The length of time Asparagus requires to come into bearing depends much on the soil. It is useless to attempt raising it in poor ground.

Rhubarb also is one o the roots requiring early attention, and requires a very rich and deep soil, of a clayey nature, to bring it to perfection. They need be set but a few inches under the surface, and should have a clear space of about two feet each way to develop themselves properly. There have been so many improvements made in the varieties of Rhubarb now, that there can be a good selection of kinds for different circumstances; but we have not found a very great deal of difference between some kinds. Linnæus, Prince Albert and Magnum Bonum, for instance, when grown side by side, or cooked, exhibit little difference worth appreciating,—although those who peddle old Rhubarb plants, under the new name of "Wine Plants," assure us we must have the "true Linnæus," to be successful.

WINDOW PLANTS.

These suffer much at this season from the high and dry temperatures at which it is necessary for human comfort to keep our dwellings. Air can seldom be admitted from the lowness of the external temperature. Saucers of water under the plants do much to remedy the drying from which room plants suffer. In such cases, however, so much water must not be given to the plants as to those without saucers. The water is drawn up into the soil by attraction, and though the surface will appear dry, they will be wet enough just beneath. The more freely a plant is growing, the more water will it require; and the more it grows, the more sun and light will it need. In all cases, those which seem to grow the fastest should be placed nearest the light. The best aspect for room plants is the south-east. They seem like animals, in their affection for the morning sun. The first morning ray is worth a dozen in the evening. Should any of our fair readers find her plants, by some unlucky miscalculation, frozen in the morning, do not remove them at once to a warm place, but dip them in cold water, and set them in a dark spot, where they will barely escape freezing; sun-light will only help the frost's destructive powers.

But, besides the aridity of the atmosphere, a more dangerous enemy to room plants is the fumes of burning gas. Many a lady, who grew plants well while the family was poor, and they lived in cosy rooms by old wood-stoves, wonders why, when rich enough to "get the gas introduced," they have no more "luck" with plants. Where plants are grown in gas lighted rooms, especial cabinets must be provided to enclose them from the space in which the gas-burners operate.

GREENHOUSES.

We note, with much interest, the increase of these grateful winter pleasures; but they a e not

near as common as they might be, through a fear that the expense is more than can readily be borne. But this is generally through the proprietor himself not giving the matter much thought, but depending altogether on the carpenter. It is best always, in this matter, to have the advice of an intelligent and experienced gardener. Every twenty-five dollars invested in this way will save hundreds from the carpenter's bill. We note many places rendered worthless for a thousand dollars, which, with a proper understanding of the wants of plants, and proper arrangements, might have been made pleasant places for half that sum.

In the arrangement of plants in the greenhouse, continual change is commendable. Every few weeks the plants may be re-set, and the houses made to appear quite different. In the end where the lowest plants once were set, now the taller ones may be placed; here a convex group, and there presenting a concave appearance. Drooping plants on elevated shelves, and hanging baskets from the roof, make little paradises of variety in what were once unbearable monotony. Gardeners often wish to know the secret of maintaining a continued interest, on the part of their employers, in their handiwork, and this is one of the most potent—continued change and variety in the appearance of every thing. Beautiful flowers, graceful forms, elegant combinations, all developing themselves with a healthy luxuriousness and ever-changing endlessness, will wake up an interest in the most indifferent breast.

The temperature of the greenhouse at this season should be maintained at about 50°, allowing it rise 10° or 15° under the full sun, and sinking 10° or so in the night. Though many of our practical brethren differ from us, men, for some of whose opinions we entertain the highest respect, we do not recommend a very great difference between night and day temperature, we think 10° ample allowance. It is following nature, no doubt; but we would rather strive to beat nature. She cannot make the specimens we do, nor flower them so beautifully or profusely, and in many other respects we think the practical gardener can much improve on her red-tape notions and old-fashioned courses.

Many plants will seem to be full of roots, and the temptation to re-pot will be very great; but if a plant is desired to flower freely, the fuller of roots the pot is, the better. Continual pot-*tering* is the bane of plant-culture. If the soil is so very much exhausted that the flowers are likely to be small and poor, a half inch of the old soil in the pot, on the surface, may be replaced by a top-dressing of rich compost. But watchfulness must be afterwards exercised, or the plant will get over-dry, as the loose soil on the top will often appear wet, when in reality all below is as dry as a powder-horn.

This, by the way, is often the cause of the flower-buds of Camellias falling off. The little dribblings of the water-pot, they daily receive, do not penetrate far beneath the surface; the roots at the bottom do not get enough, and the buds drop. Camellias ought to be in such a part of the house as not to be liable to become often dry; such a spot, for instance, as will admit of one good, thorough watering being enough to last for a week.

VINERY AND FORCING HOUSES.

About the first of January, those who have the luxury of forcing houses, will have their slumbers disturbed by visions of early fruit, and will rise in the morning with the determination to begin at once and go right ahead. Those, of course, who are blessed with superior skill and knowledge, have already commenced, and are now under way. At the start it is best to go slowly, or the plants will be like a good pacer, who has not turned his wind in the race. For Strawberries, 55° will be a good point to start with, and, indeed, at no time do they require a much higher temperature than 65°. They are the easiest of all fruit to force. They require plenty of water, saucers under them do well; like plenty of light, must be near the glass, and must be carefully watched for the red spider. They well repay the cost and trouble of forcing. All other kinds of fruit may be started at the same temperature, rising it as the buds begin to burst, and the branches proceed to develop themselves. As the flowers expand, they must be carefully guarded against excess of moisture, or from becoming too dry. In either case, the buds will fall off. Sudden changes of temperature will also produce the same effect, as well as sudden transitions from a moist to a dry atmosphere. There is less danger from a moist atmosphere than a dry one, and water should be strewn plentifully about the paths and shelves; and before giving air, when much of the moisture in the house will escape, as the upper sashes are opened.

While keeping an eye on the success of this year's crop, a glance must occasionally be bestowed on the season that is to follow after; and if any shoot seems to be starting away stronger or more vigorously than the others, pinch it out as soon as such a monstrous tendency is fairly discernible.

Above all things, in forcing take care of the leaves; never suffer one to be in the slightest degree in-

jured, if possible to prevent it. Sudden bursts of sun, insects, escape of gas from the flues, very low or high temperature, too much or too little water, any one of them will come unexpectedly, like a thief in the night, and rob you of all your anticipated fruit, if you only allow them the least chance of a foothold on the leaves.

Communications.

DER WEINSTOCK UND DER WEIN.

BY HORTICOLA.

PRAKTISCH WISSENSCHAFTLICHE ABHANDLUNG UBER DIE ZUCHT DES WIENSTOCKS UND DIE BEREITUNG DER WEINES. Nach eignen Erfahrungen und Untersuchauzen eingehend und farrlich dargestadt von Friedrich Mohr, Doctor der Philosophie und Medicin, Medicinalrath, etc., etc. Coblentz, Hoelscher.

We deem it our duty to call the attention of such readers as understand the German language, to this most excellent work. Its author, who has devoted his whole life to the study of the Natural Sciences, ranks among the first chemists of the age. He has published numerous works, all of which are acknowledged to be classical, *i. e.*, his admirable Commentary on the Prussian Dispensatory (Pharmacopaæ Borussettia''), in two volumes. One of his works ("Pharmaceutische Technik"), on the manipulations and technical operations necessary to be acquainted with in order to carry on the drug business, has been translated into English. We do not recollect, however, the exact wording of the title.

The work is dedicated to the Queen of Prussia. Those conversant with European customs, know that the permission to dedicate a book to a Queen is never granted to a common man for a common book.

Dr. Mohr, living on the *Rhine* where the *Moselle* unites with it, had unparalleled facilities for studying practically, by observation, the different methods pursued by Vignerons, of managing vines and vineyards, as well as those of making wine. His profound knowledge of Vegetable Physiology and of Chemistry enabled him to corroborate and explain scientifically some of them, and to show up the absurdity of others. *His work does not interfere with any extant*; on the contrary, *it forms the foundation for them all.* It does not teach new methods of pruning, pinching, training, etc.; but it shows the basis on which those operations rest, and the objects for which they are intended.

It is absolutely impossible to make extracts from a book, teeming with matter so important. We will, however, mention here the physiology of the vine, the development and structure of it, the causes for pruning and the pruning itself, the treatment of the vine during the summer, the manuring and the quality of the manure, the bleeding of the vine and the chemical analysis of the fluid lost by bleeding, the grape-vine disease, etc.

The second part (not volume) of the work, which treats of wine making, is equally interesting; but as many more persons plant and cultivate vines than make wine, we confine ourselves here to the contents of the first part.

The author has no acknowledgments to make except to *Kecht;* his investigations and the results of his experiments are original. To gain positive, scientific knowledge, he had more space twenty years ago,—a trellis erected 800 feet long on which to grow his vines. He planted, besides, about an acre of ground to Grape-vines at his farm near Coblentz. Surrounded, moreover, by the most celebrated vineyards of the world, and by scientific and skilful vineyardists, he was so circumstanced and so many advantages were united in him as have never taken place before in the whole history of Viti-culture, and will hardly ever take place again.

Dr. Mohr's admirable book ought to be in the hands of every cultivator of the vine who understands the German language. Written by a man who is master both of his subject and of his language it is intelligible to all.

We are engaged in the translation of the first part of this book into the English language, and shall soon publish it with some additional remarks on the propagation and the general management of the American varieties. We are so situated that we cannot perform this task without much inconvenience; still, we think it our duty to introduce a work to this country, than which there does not exist a similar one in any literature.

TILDEN TOMATO.

BY JAMES HOLDING, HAMMONTON, N. J.

I see a communication in the *Monthly* from Mr. Robert Sinclair, of Baltimore, Md., noting the Tilden and Cook's Favorite Tomatoes as identical, and condemning them both as "vegetable humbugging."

Mr. S. must be mistaken in them with regard to identity—they are very distinct. I am satisfied I have the Tilden, and I think I have the Cook's Favorite. Had them, this year, growing by the side of others, including Fejee, Lester's Early

Round Red, and the Large Red,—the Tilden ripening within 48 hours of the Early Red,—the Early Red being much the stronger plants when planted out; in fact, the seed were sown 7 days before any other variety, and only 48 hours before the Tilden at maturity; not more than two-thirds the size of fruit; not more than one-half the amount of crop. The Tildens were very large and uniform, solid and good flavor, and the greatest crops of all the lot. I think Mr. Sinclair has not got the true Tilden; if he has, soil or location must make a great difference; more so, as the distance from Baltimore is not much.

The Tilden is the best Tomato for the amateur or the marketman that I know of, and I have tried most all that have appeared before the public within 10 years.

BEDDING GERANIUMS.

BY GEORGE SUCH, SOUTH AMBOY, N. J.

I feel obliged to J. M. for his article on Bedding Geraniums. However, before condemning "Lord Palmerston," let him wait another season, and he will, I think, change his opinion. Planted in light rich soil it did admirably with me, enduring the terrific heat of last summer fully as well as Stella and Cybister. As a pot plant for greenhouse decoration it stands in the *very first rank*, the flowers almost completely hiding the leaves.

Last Spring, I got over from England, Beaton's Amy Hogg, Alexandra, Indian Yellow, Duchess, Magenta Queen, Orange Nosegay, Scarlet Gem, and Mrs. William Paul. Indian Yellow is described as "orange scarlet suffused with yellow." The color is very brilliant, but, I confess, the *yellow* is not distinguishable with the naked eye. Alexandra is magenta, and Amy Hogg is dark rose; both fine. Duchess, a soft and glowing rosy scarlet, is charming, believe me. Magenta Queen is a striking color, and of vigorous habit. Mrs. William Paul is rosy-pink, delicate and very pretty.

The best white Geranium I ever saw is a new one called *White Perfection*. You will, doubtless, see this next season and agree with me in this opinion.

Last summer I flowered nearly all the new and old French Gladioli; among them Shakespeare, Milton, Eurydice, Madame de Sevigne, Meyerbeer, Newton and others. I will tell you a word or two about them should you care to hear me.

[Certainly.—Ed.]

THE USE OF LEAVES IN PLANT HOUSES.

BY J. C. JOHNSTON.

The article in the *Monthly* for November, on this subject, was written some nine months since, and, to the best of my recollection, not for publication but to obtain from the Editor his opinion how far the moisture engendered by the use of leaves below and around plants in pots affected the temperature during severe frosts.

That question is still unsolved, but the experience of a second season enables me to renew the subject with increased confidence.

If there is at command all the caloric necessary to sustain a temperature of not less than 45° during the severest night frost, almost every description of shrubs and plants, prior to blooming, grow and thrive much better plunged one-third or more in leaves. Soon after the pots have been arranged on the stages,—the bedding being carefully and neatly placed by hand,—the leaves soon become more or less compact, and do not readily part with the moisture passing through the drainage and descending, also, from occasional syringing. This is the case only on those stages which have not pipes or flues immediately beneath. A strong bottom heat —or even of medium power—dispels the moisture, and renders the leaves superfluous; but in any other part of the house, not too far from the glass, this plunging process answers a better purpose for the healthy and vigorous development of plants coming forward for bloom than any other condition that has come under my notice. Just so soon as the roots find their way through the bottom of the pots,—and they lose no time in doing so,—as surely does the process of a vigorous growth commence and continue. These adventurous roots are not stationary; many of them travel some distance, extracting sustenance, like so many greedy leeches, from the gradually decaying leaves. That is proof enough of congeniality of element. But a more apparent one is the deep green of the leaves. It is better, however, to restrict the under-growth, or else the plants become checked when removed for blooming elsewhere.

As evaporation from the pots is counteracted by the moist leaves one-half ordinary quantity of water suffices, which is a great desideratum in winter. Many experienced persons,—amateurs especially,—would strenuously object to a greenish deposit which, after a while, surrounds the sides and rims of the pots. Certain to generate mildew, green fly, and all the ills plants are heir to, is their verdict. Not so fast, gentlemen. Now and then we drop in upon some old fogy, with a half-rotten low-roofed pit,—misnamed greenhouses,—chuck full of stuff. Every thing is shabby,—dirty, if you will have it so,—especially the pots;—why, they are so slimy, it is difficult to hold them. True, but how about the

plants; are yours half as healthy? Abundant and systematical ventilation is the secret. Only provide that, and, no matter how verdant the exterior of the pots may be, the stock will be satisfactory.

The leaves we use are Maple, Oak and Apple of the current season, to which are added the remains of those used a year ago, now much broken, but very good to mix with the new. I would use old leaves altogether if we had a sufficiency of them.

This mulching, or plunging of pots in leaves, is scarcely practicable on shelves, unless these are wider than usual. It is best adapted for stages 3 feet in width, with a raised edge 6 to 8 inches deep. When these are filled up with leaves and the pots nicely arranged, the plants have a very snug appearance, and look much better than standing separate and distinct on bare boards.

Last summer I repeated the experiment of leaving certain plants in their winter quarters amongst the leaves. The house is a lean-to, against a frame building painted white, and although a little shaded by high bearing trees, is unmistakably hot; yet there was no flagging, although the supply of water was somewhat irregular. The leaves, by that time, were pretty well reduced in size, and assume a compact condition very retentive of moisture. When the roots find their way into this genial medium it is really surprising how indifferent the plants are to a temperature ranging from 80 to 110 degrees. The syringe is used, however, every evening, and, at noon, the floor is drenched with water.

Many spring-struck cuttings of stove and greenhouse plants will thrive better in this way, during the months of June and July, than if turned out of doors to encounter the ordeal of overpowering sunshine, drought and drying winds.

Better leave the leaves alone if the appliances for ventilation are imperfect or irregularly used; also, if the proper temperature cannot be depended on during severe frost.

TILDEN TOMATO.

BY J. C. JOHNSTON.

With me worthless. A poor cropper and of diminutive size, much inferior in flavor to other kinds. I grow a sort (said to be of French origin) infinitely superior to the Tilden in all respects, so good, indeed, that I don't see how it could be improved. The fruit is uncommonly large and abundant, beautiful shape, and brilliant red color.

I used to take a few to some friends in the city, with whom I am in the habit of dining, (several of these being experienced cultivators,) and they declared they had never seen or partaken of any Tomato that equalled mine. Of many hundreds I cut up in slices, to eat as a salad, I can only remember finding one that was not solid throughout. We grow on low hills,—working in each, before planting, a handful of Super-phospate. This stimulant, and heading back the plants when about 6 inches long, is our method of growing Tomatoes in perfection:—but the Tilden failed to respond.

AUTUMNAL STRAWBERRIES.

BY W. R. PRINCE, FLUSHING, N. Y.

I see some notices of the casual production of an autumnal crop of Strawberries, which are announced as "out of season." This would seemingly indicate an ignorance of the fact that there are very many autumnal bearing varieties of the Strawberry.

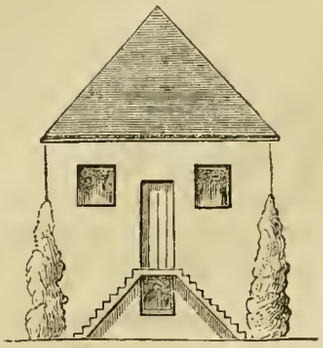
The varieties of the Pine family (*F. grandiflora*) are, very many of them, *autumn bearing*, and only require to be grown in a moist soil, and to be well watered, by irrigation or otherwise, to insure a very considerable autumnal crop.

Lennig's White, Lorio, and Ornement des tables are varieties possessing this character. With the same attention, the varieties of the true Hautbois, [*F. elatior*,) of Europe, will produce the same result. These are the Belle Bordelaise, Bijou des Fraises, Royal, Monstrous Hautbois, and Prolific Hautbois. But passing from these exceptional varieties, we will find a family whose character is *permanent production of autumnal crops.* This is the Alpine section of *Fragaria vesca*, of which we now have more than a dozen fine varieties. The old Red and White and the Large White Orleans, Janus or Twin-berried, La Grange, La Mendonnaise, with Lettuce-like foliage, and bush like, with few runners; Gloire du Nord, Perpetual Poiton, Versailles, Triumph of Holland, together with the Bush Red and Bush White, which are devoid of runners. So abundant are the crops of these throughout the entire season, when appropriately grown, that the Paris markets are amply replenished with their fruit till Christmas.

A moist soil and irrigation are the great points of requirements for large autumnal crops, and we find that such is their influence in our Southern States, that, when combined with heat, all the species and varieties of the Strawberry are everbearing, as is most strikingly evinced on the moist lands along the Mississippi, at New Orleans and elsewhere.

ILLUSIONS OF COUNTRY LIFE.

BY J. S. H.



I think it was the oracular Emerson who said, with painful truth, to one who had a yearning for country life without practical knowledge of rural pursuits, "to have *no land* was bad, but to have *some land* was worse, for it took a salary to maintain it." Many such persons, I fear, who thought "Ten Acres Enough" have found, to their sorrow, that less than ten acres was entirely *too much.*

My friend, Jesse Rural, who has a small place in the country, and who is a perfect enthusiast in horticultural matters, has had some sad experiences in his time.

Jesse planted his first batch of Raspberry plants, (a new variety purchased at a high price,) with long canes attached to the roots, and fruited them the first year of planting. I shall not soon forget the glow of triumphant pride upon his broad, rosy face when he came to town, on the cars, with his first bucket of fine, luscious berries on his arm, on his way to market. "Ah, my boy!" said he, "look at that, for a city farmer!" Poor Jesse! he did'nt then know that canes fruited the first year of planting would utterly exhaust and destroy his costly plants. He is wiser now.

But Jesse also went early and largely with the Everbearing Raspberries,—those marvellous kinds which fruit throughout the four seasons. They grew enormously, and finally, after two years, Jesse had half an acre of plants. I often asked him how the Everbearing things produced, but got no decided answer, until, at last, he replied that he thought he had been deceived, (like a person reported in one of the Conventions,) who, instead of the *Ever*-bearing, had got the *Never*-bearing sort.

Jesse, being a convert to the doctrine of surface-planting for fruit trees, placed his Dwarf Pear trees in holes not more than four inches deep, and put a small mound of earth about them. The mound, in process of time, got hoed away, and the quince roots got exposed, and dried up in the hot August sun, and stunted the trees; and that interesting little specimen of Entomology, the Saperda bivittata, (which was unknown to Jesse,) laid its eggs on the quince roots, and, finally, the trees exhibited signs of chlorosis, and died; and Jesse was perfectly astonished to find his pet trees entirely girdled by the borer.

My friend Rural now became convinced that surface planting and cultivation would not answer; so he planted again, full of hope, in grass sod, and mulched his trees heavily with litter. All went on well for a year or two, until one spring Jesse noticed that his trees did not put forth the foliage as usual, and on examination he found that the mulching and grass had furnished a nice harbor for field mice, and all his trees were girdled again by these industrious Rodentia!

But Jesse planted again, with all the indomitable energy of a man determined not to be overcome by the small accidents of life. This time he went in for standards, and bought large trees, so as to get the fruit early. Some of the trees were "full of fruit buds" he told me, and he expected to get fruit in two years at least. I regret to say that more than half of these large trees died from natural causes the first season, and a pet goat, which he bought for his son, nearly finished the remainder, while Jesse was absent at the seashore.

Besides the trees above noticed, planted in orchard style, Jesse had others in his garden, near the house, on which he tried experiments in manuring, with a view to produce heightened color and increased flavor. Some of these, I fear, have been over-dosed with manure, as they have died, very mysteriously, once in a while. Jesse attributed the mortality to "aridity of the atmosphere," I think, "parasitic fungus at the roots," &c. The Pears with beautiful color and improved flavor have never appeared; but I tasted some specimens, rather cracked and spotted, picked from his favorite trees, which had a flavor somewhat resembling a mixture of copperas, persimmons, and decayed bananas.

Peaches, Jesse has endeavored to produce, but has met with no marked success. The Peach-worm was his great enemy, until he read in the *Country Gentleman's Companion* that gas-tar applied to the bark of the tree would banish them. Jesse tried it. —It did banish them, but unfortunately killed the trees.

Jesse has tried his hand at raising Strawberries. He read in his favorite journal that Strawberries liked a deep, rich soil, and that trenching was especially useful. So he dug trenches or ditches, three feet deep, and filled them with rich dung and soil,

and planted the beds with the best Hovey's Seedling. But, after trying for two or three years, during which his patience and industry met with no reward, the plants looking burnt up and sickly, he learned, to his astonishment, that Hovey's Seedling needed a fertilizing agent to render it fruitful. He now grows Wilson's Albany only, in plain soil, and succeeds rather better.

Plum trees and Cherry trees Jesse has also planted, which have grown astonishingly. But the Curculio and the Black Knot, and the Aphis and the birds have so far prevented him from enjoying the fruit of these fine trees.

He has also tried Grape-vines of all kinds with this result:—he says he believes the vine requires a volcanic soil, freely supplied with sulphur and super-phosphate of lime, and the presence of water, —say a lake or a river,—in the immediate vicinity. He is quite convinced that "aridity" is the prime cause of mildew and oidium.

Jesse's Potatoes were always large and fine-looking, but to my taste rather too juicy. So Jesse sent to England for some new varieties—the Regents, Dalmahoy, Patterson's Seedlings, &c.—and, I regret to say, thinks now that he imported a new kind of rot along with his new seedlings.

In Peas, last spring, he met with a singular misfortune. He read in his favorite journal that if Peas were planted eighteen inches deep they would come up strong, like bushes, and a single row of vines might be cropped the whole season. Jesse planted accordingly, and it is an unpleasant thing to state, but the Peas never came up at all.

The Peas having failed, Jesse looked forward with increased interest and hope to his fine patch of Cantelopes. The little black flea beetle and the striped bug, however, threatened to destroy the whole crop. There were millions of them engaged in the pleasant pastime of skeletonizing the leaves. Jesse heard that coal oil would destroy or drive them away: so he sprinkled his vines with petroleum.—The bugs disappeared for a time, but Jesse is now convinced that rock oil is not good for tender foliage. Something injured the vines so seriously that they nearly all went into a decline. Jesse thinks it was the petroleum.

Jesse has tried faithfully to produce spring Turnips, and tender Radishes, and Cauliflowers out-of-doors, but is now satisfied that the gardeners are correct;—that these things are not worth doing.

Asparagus, Jesse says, is a marine plant; that it grows wild on the seashore, and likes salt as a fertilizer: but I fear he has put too much old fish brine on his Asparagus bed; for the heads of Asparagus come up with a curled corrugated aspect, looking more like sea kale than Asparagus, and have a flavor like rusty mackerel.

Jesse once went into chickens with great earnestness. He hatched 400 chickens in the loft of his barn one winter, and fed them all in-doors till spring. He fastened each hen up on a nest full of eggs, and attempted to make them hatch by force. Some rebelled and would not sit at all;—and some died on the nests from some mysterious cause. The rats killed many small chickens, many died of the pip, and, finally, when the chickens were nearly ready for use, some chicken thieves took ten and twenty pairs of a night. I think Jesse decided that the chicken business was not an inviting speculation.

Rural Architecture is one of Jesse's favorite studies. So is landscape gardening. He fancies he is quite an oracle on these subjects. Last year Jesse built a summer-house on a pretty knoll,—a sort of ideal rustic reading-room,—intending to be ornamental as well as useful, and to express Jesse's own conception of use and beauty in harmony with Nature.

The engraving at the head of this article is an off-hand sketch of Jesse's Summer-house. Unfortunately, by some accident, the builder has made it resemble a human face, or head, with eyes, nose, mouth, moustache and side-whiskers,—and Jesse's Summer-house is known throughout the neighborhood as Jesse Rural's Head. My friend Rural, in his æsthetic efforts to put the man into his work, has not only given us a copy of his idea, but literally a copy of his head! In fact, some say it is so like the original that he will have no need of photographs to perpetuate his likeness.

MARSHAL NIEL AND OTHER ROSES.

BY CHARLES CRUCKNELL, GREENWOOD NURSERY, POTTSVILLE, PA.

Some of the recent additions to this handsome genus of the Floral Kingdom are truly magnificent. The ambitious dreams of the Rosists of a past age bid fair to be realized, if not indeed surpassed. Who is there, ten years ago, had the remotest idea that a Rose, combining in itself the qualities of many of the species, would, to-day, be in existence? Uniting as it were the rich golden color of Rosa Harrisonii with the dreamy perfume of the beautiful Tea; the profuseness of bloom of the prodigal Bourbon with the Noisette's rampant growth; the classical form of the Remontant with the goodly proportions of the June Roses, which are fast being driven out of cultivation, as they ought to be. Yet such is the case.

Marechal Niel is the grandest triumph of the Florist's Art in the 19th century, and adds one link more to disprove "Nature's Law of Colors," making it highly probable that at no very distant day the "primary colors" may occur in varieties of the same species. For who is there can point out plainly the dividing line between a "species" and a "variety?"

The following twelve Roses are Remontants, and suit our climate admirably. Some of them are as free bloomers as the Bourbons, and are, I presume, very closely allied to that class:—

Souvenir de William Wood is a very dark flower, —one of the newest, and one of the best. Color velvety, purple crimson, very rich looking, intensely dark, perfect in form, with good foliage, and *very fragrant* and full. Most Roses of the very dark order are imperfect in form—that is, they are flat-shaped. This one, on the contrary, is as perfect in form as Charles Lefevre, which is saying much. The two best Hybrid Perpetual Roses of the season are *Blanche Virginale* and the one I am writing about. The one opens out a pure white; the other, viewed in some positions, appears to be jet black, which it is not.

Prince Camille de Rohan is probably the most distinct Rose of its color which has been produced for many years past. It is a moderately strong grower, throwing out short, stout side shoots, on the end of which are borne flowers of a rich, velvety crimson, intensely brilliant, without a shade or mixture of any other color, which so often detract from the beauty of many fine Roses. It flowers throughout the summer, more or less, and is a remarkably free fall blooming variety, very full and fragrant.

Charles Lefevre is a beautiful flower of great excellence, and although not new is not near so much cultivated as it should be. The outer petals recurve back almost touching the stem; the inner ones overlapping each other in regular order, forming a flower of wondrous symmetry; color brilliant crimson, richly veined with purple and scarlet, the under side of petals violet; blooms in clusters, very fine for show purposes, but not so free a bloomer as some.

Christian Puttnar.—This is a Rose of unequalled excellence, rivaling in brilliancy of color and symmetry of form the famed Charles Lefevre. The veining of the petals are beautiful. If any doubter wishes to know wherein lies the superiority of the Florist's Art over all others let him take a flower of this variety and examine it closely. What painter can produce on canvas a thing o beauty like to that? The flowers are cup-shaped, erect growing and fragrant; color bright rosy crimson; a first class show flower.

Auguste Riviere, somewhat in the style of Charles Lefevre but quite distinct from that variety. Color brilliant purple shaded with crimson; elegantly cupped, a free bloomer, fragrant and tolerably strong grower with healthy foliage. This is likewise a first-class show flower ranking equal to the last named.

Monte Christo is a splendid dark colored flower, very large and full. It has a peculiar dark shade of purple when first opened, changing, in the course of a few hours, to a most brilliant scarlet, a shade darker than General Jacqueminot; a strong grower and pretty, free bloomers. The flower is flat shaped.

General Washington.—The Rose of this name is a remarkable variety, void of fragrance, for which it amply compensates by the abundance of bloom it gives through the season. Spring rooted cuttings commence blooming immediately and continue to do so until cut short by frost The flowers are large and full, very full; color scarlet crimson,—in the style of the well known Geant des Battailes,—with decidedly better foliage, and not subject to mildew. I saw at Germantown, Pa., at the nursery of Mr. L. C. Baumann—who, by the way, is an excellent Rose grower;—could you not persuade him to give an essay on the Propagation of Roses? Most writers give the *general facts* skipping the *details*, which are the most important. Pardon my digression, I am afraid I shall tire you,—I saw a bed of three thousand plants of this variety in midsummer in full bloom. A more gorgeous sight it has never been my good fortune to behold. Every flower was of immense size and perfect, although opening under a July sun.

Madame Charles Wood is a good Rose for the open ground, continuing in bloom the whole season without intermission. The flowers are large, double, cup-shaped, fragrant; they grow in clusters, thus indicating its origin. Color scarlet-crimson, darker than the foregoing which it much resembles.

Prince Henry des Pays Bas is a Rose distinct from anything yet described. It is almost globular in shape; color scarlet-crimson shaded with violet, occasionally marbled with white; a good grower and fragrant.

Souvenir de Count Cavour (Margottin's). There are two varieties with this name: one a light blood red, large, coarse blossoms, and very strong grower, and Margottin's, which is much the better flower of the two.

Souvenir de Lady Cardela;—purplish-crimson,

veined occasionally with white; free bloomer, good.

Prairie de Terre Nois is a dark purple-crimson, delicately veined; large, double, and a free bloomer; the flower finely cupped; it makes a good standard.

There are many fine new Roses equal, probably, to most of the foregoing, but in making a selection I consulted my own taste,—no easy matter,—out of some five hundred varieties.

MUSHROOM GROWING.

BY C. N., NEWARK, N. J.

Having seen some observations in the *Gardener's Monthly* about growing Mushrooms, I will give the practice of Richard Miller on the subject. The cultivation of Mushrooms is a process more peculiar than any in gardening, in this, that while in the cultivation of other vegetables gardeners sow or plant something they see or handle, in the cultivation of Mushrooms they neither see nor handle anything.

Yet that Mushrooms can be made to grow artificially at any season of the year is a well known fact, and that the droppings of hard-fed horses will produce Mushrooms plentifully. The droppings of horses fed on green food of any kind are of no use for the purpose.

Beds built in the common way and spawned produce Mushrooms only for a few weeks or months—the way here recommended will produce them for twelve months or longer. The process is more sure, and the time of reaping may be reckoned with certainty to be in about ten or twelve weeks. But Mushroom beds, in whatever way made, are subject to many misfortunes,—as the spawn is so delicate that it is easily destroyed by too much water or drought.

To make the bed, proceed thus:—Suppose it to be made in a cellar, (no matter how dark) where the temperature can be kept at 55°. Lay a foundation of coal ashes three inches thick, to prevent underdampness, and board all around the bed to the height of ten inches or so—four feet broad is a convenient breadth. Make the bed any length required; then commence collecting the material. Set a hamper in the stable so that the stable boys can deposit the horse droppings in it every morning as whole as possible. Have a shed open in front to the sun; deposit the droppings every morning in it, and dry them well; for if ever they get hot in drying, or after the bed is made up, all the labor is lost.—Whenever you have droppings enough dried to cover the bed six inches deep lay them on as whole as possible; then cover the bed to the thickness of two inches with light, dry earth; lay another course of droppings and earth over as above; then a third course in like manner, and earth over four inches deep:—this finishes the bed.

Let it remain ten or twelve weeks. At that period thrust in your hand a few inches deep and examine what is brought forth. If it smells like Mushrooms, with small bits like thread visible, the spawn has begun to run. Generally you will be forewarned of the spawn's running by a previous crop of spurious fungi.

When you have thus ascertained that the spawn is fully formed, give the bed two or three waterings, in order to set it growing, (but by no means at once,) as will reaching the bottom of the material; afterwards keep the bed neither wet nor dry, but rather incline to the latter. When the bed, as it were, is tired of producing, let it remain for a few months without watering, when often a new set of spawn will begin to run, and, by giving a hearty watering, as above recommended, a most plentiful and lasting supply will often be obtained.

In gathering Mushrooms they should always be cut, and never pulled, as there is always a cluster of young around the old ones.

The above process surpasses all other modes in growing Mushrooms, to which I can certify.

[An excellent, practical article, for which we are very much obliged.—ED.]

MISCELLANEOUS SKETCHES.

PROPAGATION OF THE ROSE.

BY ORCHIS.

At the present time, when the Rose is receiving so much attention, this subject should be one of the deepest interest to the gardener, as well as the planter; as, by a proper application of ideas with a view to their ultimate usefulness, the plants will be increased in vigor. Or, in other words, according to the treatment received when young, so will their mature development be affected.

To the gardener it is, perhaps, of the greatest importance, as every intelligent and conscientious grower desires to produce strong, healthy plants, that will give entire satisfaction to the purchaser, as well as prove more remunerative to himself. To the planter it is also a matter of considerable moment, as the Rose, like the Grape, is liable to lose much of its constitutional vigor by an erroneous course of reproduction.

In the present article, the writer desires to call the attention of his readers to the various methods of propagation, and the influence exerted on the mature plant by each. The more tender Roses,

comprising the *Tea*, *Noisette*, *Bengal* and *Bourbon* classes, with the *Prairies*, are so readily reproduced by the old, well-known method of hard wood cuttings, that it is not necessary to embrace them in our remarks; but such varieties as are included in the *Hybrid Perpetual*, *Moss*, *Provence*, and the numerous other hybrids and species, are increased with so much difficulty by this process, that it becomes absolutely necessary to use some other method to enlarge our stock of plants.

It is true we have known instances where these varieties have succeeded equally as well by this system as the tender Roses, and have had ourselves what gardeners term a perfect "strike;" but the next season, in the same bed, and with the same treatment precisely, we have met with an entire failure. To counterbalance this accidental (or rather uncertain) system, gardeners have recourse to a number of plans, which prove more unfailing. The first of these is budding on the Manetti stock, a strong, healthy grower, but exceedingly liable to sucker, and hence quite unpopular among a particular class of purchasers. Although we do not deprecate this method, believing that, in the majority of cases, and more particularly for such weak-growing varieties as *Dr. Henon*, *Virginale*, &c., it is very beneficial; yet the uninitiated purchaser is so liable to neglect his plants, that in a few years he not unfrequently finds a strong, rampant grower, with a poor, insignificant bloom, in the place of what was originally a compact bush, with splendid flowers.

To the careful, well-informed gardener, we reiterate, budded Roses are preferable.

The next plan we shall consider is the layering process. In the open air, in certain situations and with a favorable season, it may prove reasonably profitable; but our growers generally, in this progressive age, desire something rather more speedy. The plants also, by this method, are very frequently poorly rooted, and require two years to become saleable, thus proving too serious an objection, to the producer, at least. Many gardeners have recourse to inside layering from plants grown in pots, the young, half-ripened wood being used; and as this is much more liable to throw out roots than the older wood, and being likewise aided by the warm, humid, even temperature of the house, this process is comparatively easy and certain. Our objection to this system is, that the plants produced are generally too weak, and especially among those varieties that are constitutionally devoid of vigor. They *may* eventually form excellent specimens; but, as time is money, particularly when increasing our stock of the new and scarce varieties, we must turn our attention to a more satisfactory method. Another objection is, the amount of wood necessary to perform this operation. A branch used in layering would form, perhaps, sufficient material for three or four good cuttings, which is a very important fact to be taken into consideration. The plan now very generally pursued by many of our best propagators, and one which the writer objects to seriously, is that known as "soft-wood cuttings." Almost every one interested in this subject is aware that young, half-ripened shoots taken from plants grown under glass strike more readily than those taken from similar plants grown in the open air. These cuttings are usually prepared and placed in the propagating bed during the Summer months, to be forced into new individual plants by heat, either through artificial means or, as in some instances, by the rays of the sun.

This plan is, undoubtedly, one of the most expeditious, and, in the hands of an expert propagator, most certain in use; but we fear at the cost of the future race of plants. The system of forcing the parents under glass during Summer, and in many cases producing weak wood, is certainly a forerunner of disease, and almost invariably (unless a very strong grower naturally) produces small plants, requiring several years to perfect their usual vigorous growth. This theory of excessive forcing and rapid reproduction is fully exemplified in the thousands of weak spindling Grape-vines that are annually offered for sale, especially among such poor growing varieties as the Delaware. We now arrive at another, and in our judgment, the best system in use,—simply root-grafting. Although deprecated by many, it is to our mind not only as expeditious, but the most desirable to the purchaser of all the methods named. In the first place we have the privilege of selecting healthy, well-ripened wood, taken from strong plants grown naturally in the open air, which is of primary importance.

Secondly, we use a very small portion of root, taken from one of the strongest growing species, such as the Manetti, and thus give the young plant an impetus at the very commencement.

Thirdly, when planted in the open ground the small portion of artificial root *almost invariably dies*, as the young plant forms new fibres at the base of the graft, thus making it truthfully on its own roots.

Fourthly, in our experience, plants thus grown are larger and healthier than those produced by any other method. We have seen in large blocks of Roses grown in this manner an occasional plant showing the effect of its artificial propagation by a

sucker, but this is extremely rare, and only when the junction was not complete; and is undoubtedly one of the very few exceptions to the rule.

We do not wish to be thought egotistical in this matter, nor take unto ourselves any praise for discovering new theories, but simply to state our own observations founded on the experiments of years of patient trial. From childhood we have loved flowers, and particularly the Rose; from loving it we have made it a "hobby," and desire that its reproduction may be carried on, under the most generous system that looks towards an increased healthy, vigorous growth.

This subject has long been in our mind, but only recently has it taken so great a prominence, owing to the many advertisements of vendors appending to their notice of Roses for sale, "*all on their own roots*," "*not budded or grafted*," &c. We have not in our mind's eye any particular grower when we make these remarks, nor do we wish to call in question the motives of any one; but simply to express our own views on the subject with a heartfelt desire that every owner of a dooryard in the country, may make it literally "to blossom as the Rose," and that wherever the *Monthly* penetrates, mankind may enjoy the incalculable blessings consequent on the refining influence of flowers.

VALUE OF VEGETABLE PHYSIOLOGY.

BY H. W. RAVENAL, AIKEN, S. C.

Your remarks in the November number of the *Gardener's Monthly* on the "Physiology of the Potato" are interesting. As valuable a thing as "practical knowledge" is to the gardener, (and I place a high estimate upon it), it must be confessed that all our *modes* of management, all our practical rules and all our knowledge derived merely from experience, are more or less empirical, until we learn the *why* and the *wherefore*,—or in other words the *philosophy* of the thing.

In proportion as we base our treatment of vegetable life upon a knowledge of the laws which govern it, so will we be nearer to making gardening, farming and husbandry a science. Agriculture as a comprehensive term, which embraces all these, must necessarily, in its practical details, remain an *art*, but like medicine its *modus operandi* may be *based* on scientific principles.

The medical man learns the structure of the human frame, *anatomy*,—he studies the laws which govern it in disease as well as in health, *physiology*,—the qualities and properties of the various drugs and other agents he uses for curing disease and preserving health, *materia medica* and *Therapeutics*. He bases his practice upon his knowledge,—he works on scientific principles.

The intelligent husbandman, or farmer, or gardener, should learn the structure of the various plants he has to cultivate, *botany*,—their different organs or parts, and the functions they perform, *vegetable physiology*,—the food which they mostly need, and the best manner of furnishing it, *the science of manures*. Then as the different plants which come under his attention in the garden, the orchard or the farm, have constitutional differences, he must learn their habits, and adopt his treatment accordingly. In a word, he must keep in mind the *end* he wishes to accomplish and the *means* he has at his command. Take for instance the kitchen garden. How various and how diversified are the plants of their habits, which he brings together under his management!

There are fibrous-rooted plants and tap-rooted plants,—some are erect and bushy, others trailing on the ground and joint-rooting. There are some cultivated for their *foliage* only, *Cabbage*, *Lettuce* and *Spinach*; others for their *seed* only, *Peas*, *Beans*, &c.; and others again for the fleshy or juicy *envelopes* of the seed, *Squashes*, *Melons* and *Tomatoes;* some for the *tubers* or under-ground branches, *Potatoes*, *ground Artichoke*; other for the *flower-bud* only, globe *Artichoke*. The *Asparagus* has its stem with buds or eyes under ground, and shoots up a flower stalk which we cut when young and tender, as a vegetable. The *Onion* bears its bulb just on the surface, which is only an enlarged bud, formed by a sudden contraction of the stem and a thickening of the leaf-stalks. Some prefer a damp, others a dry soil; some require the fullest light and heat of the sun to perfect them; others, like *Celery*, need the shade to soften and neutralize their too acid qualities, and the total absence of light to blanch their aromatic leaf-stalks.

All these facts must be kept in mind, and we must base our treatment upon a knowledge of them if we would accomplish the best results.

As a general rule *high manuring* and *deep cultivation* embrace nearly all the requisites of good management, but we can attain higher objects by special treatment. There should be a diagnosis of each particular case, and the treatment made to correspond with the peculiar condition, or wants, or habits of the plant.

THE SCUPPERNONG GRAPE.

BY J. L. MOULTRIE, UNION SPRINGS, ALABAMA.

In looking over some back numbers of the *Gardener's Monthly*, I find in the December number for 1861, some account of the Scuppernong by Mr. J. Thomas, which I think is calculated to mislead those unacquainted with this valuable Grape. Mr. T. says the berries are more oblong than those of the Isabella, and that "they are more strong, of peculiar musky flavor than any Fox Grape" he ever tasted, and consequently unfit for the table. Indeed, he seems to regard it as no better than the Wild Muscadine, of which it is a variety. Having been familiar with this Grape, in many localities for the last thirty years, I must think Mr. T. has been unfortunate in the specimens he has seen, and that they were seedlings.

In wood and leaf the two vines have a striking resemblance. The wood is very closed grained and heavy, does not strike from cuttings, but is propagated by layering. Could probably be rooted in a propagating box with bottom heat. The leaf is not more than three inches in diameter, serrated but not lobed, and is slightly glazed on both sides. The tendrils of the Muscadine are purple, those of the Scuppernong are light or pea green. The berries of both are *round*, and grow from two to twelve, or fourteen in a bunch. I have known one vine to have twenty-five in a bunch. When ripe, the Muscadine is a dark purple, nearly black; the Scuppernong is what is usually called a white Grape, being between a green and a lead color, sometimes they are tinged with pink. The Scuppernong will yield four gallons of juice to the bushel of berries; those of the Muscadine not more than two.

My S. have less pulp than the Catawba Grape. It has a *slight* musk flavor, but not more than the Isabella Grape, and nine persons out of ten prefer it to either the Catawba or Isabella as a table Grape. It has but little tartaric acid, and in saccharine matter is equal to the Catawba; the juice of both, when ripe, stand at 10° of Baume's hydrometer for syrups, while that of the Muscadine never reaches 6° of the same instrument unless so ripe as to be shrivelled.

As a wine Grape, Mr. Spooner in his work on the Grape-vine, page 63, quoting from the New York *Farmer and Mechanic*, represents Dr. Underhill as saying, "Several years ago the wine of the Scuppernong Grape was put on the table in this city with wines from Shiroz in Persia, Constantinople, Italy, France and other places. It was thought better far than the famous Persian wine, and better than most any of the varieties tried. A barrel of Scuppernong was lately put upon the lees of Madeira, and a few months after, drawn off, and pronounced excellent old Madeira, by good judges."

Mr. Meigs said, "I have at the soirees of my learned and amiable friend, the late Dr. Mitchell, tasted of Scuppernong wine, of wine of the Islands of Chios, Tenedos, of those of Syria, Greece, Constantinople, and some which I had from Shiroz in Persia, and the opinion then was, that there was no great superiority in any of them over the Scuppernong."

In the *Southern Cultivator*, for April, 1866, Mr. J. Van Buren says, "The Scuppernong is superior to all other Grapes for making *Champaigne* wine." He also considers it superior to all others os a *table Grape*. A great recommendation of the Scuppernong is that *it never rots*.

Mr. Spooner quotes Dr. Underhill as saying "that the vines at the north were all pistillate plants, and they could not cultivate for want of the male plants." This is a rare case. Occasionally the seedlings are not fruitful, but all the cultivated vines with us have perfect blooms, and as we never intentionally propagate except from layers of bearing vines, it is only when we accidentally get a seedling among the layers, that we get an imperfect bloom. I know of but one such vine in cultivation. The gentleman who owns it planted a bearing vine by its side, and it became the most productive vine that I know of. Mr. Foster, the proprietor, assures me that it frequently has as many as twenty-five berries in a bunch.

In cultivating, plant the vines *shallow* and about thirty feet apart. Trim to a *single stem* until six or seven feet high; spread out the branches as regularly over the scaffold as convenient. It will not bear close pruning, but occasionally will need a little thinning to give it sufficient air. This is done by cutting off some of the leading branches near the main stem. Do not attempt to take out these branches but allow them to remain until they rot out. If the vines run farther than you wish, it does no injury to shorten them in. All pruning of the vine must be done *in the Fall* as soon as the leaves turn a little yellow.

The objection to the Scuppernong is, that the Grapes do not ripen all at once, and have to be picked singly, at different times, which is troublesome. This is indeed an objection, but *it pays*. And since the vine requires neither trimming nor dressing, (only giving a scaffold to run on), and very little if any work after it is of good size, we can afford to take a little trouble at the time of vintage.

P. S.—In a recent number of the *Monthly* I see it stated that the Thurmond, the Lenoir and the Devereaux Grapes are the same. I have not seen the Thurmond, but I have the Lenoir and Devereaux growing side by side and they are *different*. My Devereaux I know to be true, as it came from the original Devereaux vine. The latter may prove identical with the Blue Favorite. The Warren, Warrenton and Herbemont's Madeira are the same. The latter is the most prolific of all the Grapes I have seen, but sometimes rots badly. Neither it nor the Devereaux bear close pruning, but do best on a scaffold. Mr. Longworth's segar box is the *Black Spanish*, of Mobile, Ala. It was sent him by Mr. Harwell, of Mobile.

THE BROWN THRUSH.

BY A BOY READER, BATTLE CREEK, MICH.

Herewith you will find a reply to J. P. Norris' article in the June number of the *Monthly*, in answer to mine in the April number. It was written months ago, but was laid away and forgotten during the busy season. Hoping it will still be acceptable I send it.

Emmitt, Calhoun county, Mich., on the south bank of the beautiful Kalamazoo, (Indian name signifying of the clear water), one and a half miles south of the busy, thriving city of Battle Creek, is the "region" from which a "Boy Reader" replied to Mr. J. P. Norris' article on "Familiar Birds."

Inasmuch as my own observations coincide with so high authority as Mr. Audubon, in regard to locality of nests and number of eggs, I think Mr. Norris cannot well doubt the probability that I *may* have found the nest of the Brown Thrush on the ground, and may it not be possible that the "egg collectors" of Mr. Norris did not always report the exact number of eggs found in each nest from which they were obtained?

Again, my statement in regard to number agrees with Wilson, and it is generally supposed that he is tolerably reliable authority; and from the evidence of my own sense, I must still believe that five is not an unusual number.

There is one point on which Mr. Norris is silent, and "as silence gives consent," I infer that he admits that the Brown Thrush *does* eat fruit, and in this respect he was mistaken, unless the Brown Thrush in his region is more self-denying than in mine.

I did not imagine that I should excite any unpleasant feeling in Mr. Norris in my notice of his article, but supposed he would rejoice in every statement that tended to throw light upon the history of his favorites. All lovers of Nature's sweet songsters must feel grateful to Mr. Norris for his efforts to protect the birds from destruction.

Many thanks to him for his kind advice "to extend my observations." I shall certainly do so; and as I have several years yet to live before I accomplish the teens, I doubt not I shall have very much "*pleasure*" in studying the habits of my favorite birds, and I am willing to learn that we are both right, as the habits of birds doubtless vary in different localities.

GOOD GERANIUMS AND HOW TO GROW THEM.—NO. 1.

BY J. E. J.

During the past two years many additions have been made to the lists of these deservedly popular flowers. The Zonale class are usually considered with reference to their adaptation for "bedding out" or border purposes. The Scarlets are, of course, indispensable for Summer and Autumn garden decoration, eclipsing all other rivals in brilliance of color, profusion of flowers, and duration of blooming season. But, with few exceptions, the other shades of colors fail to satisfy me out of doors.

Christine, a most excellent pink, does tolerably well; but the salmons, whites, rose and pink shades usually bloom shyly and poorly in beds or borders. All these require more humidity of atmosphere than our climate affords. On the contrary, the scarlets thrive and flower finely under all conditions of hot weather, short of drought.

These remarks are specially applicable to many of the new Zonales lately introduced. In the foreign catalogues all have excellent reputations as out-of-door bloomers, but I find it is only when grown in pots that we can realize the excellency of these charming varieties. For a cool greenhouse or conservatory at this season, they are admirable, and, with ordinary management, continue blooming from November until May. The white-edged kinds are peculiarly adapted for the house. In the open air the individual blooms are scanty and diminutive, and the colors run. But under glass we have large, finely-shaped blooms; the colored centres very distinct, in some sharply outlined upon the white, with all the effects of an (so called) eye.

The habit also, of these Geraniums is good, they do not grow so rampant as the scarlets, and the flowers have strong foot stalks, standing well up above the compact foliage.

[*To be Continued,*]

The Gardener's Monthly.

PHILADELPHIA, JANUARY, 1867.

☞ All Communications for the Editor should be addressed, "Thomas Meehan, Germantown, Philadelphia," and Business Letters directed to "W. G. P. Brinckloe, Box Philadelphia."

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CULTURE OF THE TUBEROSE.

On reading Mr. Rand's new book on Bulbs, we infer that he is of the opinion that the Tuberose cannot be grown in the open air. This may be true of the vicinity of Boston, where we suppose Mr. Rand's observations were chiefly made; but in most part of the United States it is one of the most favorite and most useful of open-border flowers, and it is not at all necessary to grow them in pots in hotbeds, keeping them there till they are in flower, as Mr. Rand recommends.

In a recent review of Mr. Breck's book, where similar treatment is recommended, we took occasion to express regret that this chapter had not been modernized in the new edition,—but as Mr. R. repeats it in substance we suppose it must be the regular Boston practice,—we therefore in view of the sale which so useful a book as Mr. Rand's will no doubt have, have thought it necessary to write out a chapter on Tuberose treatment, such as is not to be found in any of the books.

Although called "Tuberose," the plant is rather of the bulbous than the tuberous class, though Mr. Rand, by the way, objects to the term bulbous, and classes it with tuber-bearing ones, which are properly those which bear tubers at the ends of *underground* stems, which the Tuberose has not,—and while we are in the humor for making corrections, we may as well add that Mr. Rand is also most probably in error in giving the "East Indies" as its native place of growth. We showed some years ago that it was, in all likelihood, a native of this continent, and Dr. Asa Gray subsequently gave additional reasons confirming the suggestion.

It was at one time supposed that Tuberoses to be good must be imported from Italy,—but the best bulbs are now those grown in the United States. Around Philadelphia, New York, Baltimore and all large cities where light, rich soil is to be had, they are grown in large quantities and remarkably fine. Those from around New York are often mixed, the single with the double; the double one having most probably returned to its original single form, an occurrence not unusual with double flowers, but it is remarkable that the single ones have leaves of a more glaucous color than the double ones, by which they can readily be distinguished when they once begin to grow.

The prettiest way of growing Tuberoses is in beds mixed with a few other things that will give a succession of flowers from early Spring until frost. But as many Tuberoses do not flower it is useful to know how to select those that will flower from those that will not, or the bed will be unequally "balanced" when the flowering time comes round. This is done by examining the bulbs before planting out, and choosing those which have the points twisted up like a good segar; which point, when pinched off as the smoker does his segar befor using, is found to have a green core. Those which have a blunt point, and a sort of hollowness, with brown centres, will not bloom.

A dark colored sandy soil is the best for the Tuberose, and the best manure, two year old cow dung,—but all flowers like this as well as the Tuberose; where this is not at hand any rich earth will grow good Tuberoses.

The best form for a bed of Tuberoses is the circular one. For some reason which we cannot explain, they do not look near as well any other way. In this bed, plant them one to every square foot. The author of "Bulbs" has found them to do best by having the points kept above the soil,—but in the central and southern States they will be found to do better put two inches under ground, than nearer the surface. Between the spaces plant good strong bulbs of Gladiolus Brenchleyensis, and then the bed set full of scarlet Verbenas, with a circle of white Sweet Alyssum around the whole. A bed of this kind is better set in grass than any other way. The white Sweet Alyssum must be carefully looked after, as in the absence of that, there will be not sufficient contrast between the color of Gladiolus and the Verbena. The Gladioluses (we do not like the term *Gladioli*, except when writing Botanical Latin. It is mere affectation. We may as well say Bulbocodia, Croci and so on, instead of Bulbocodiums, Crocuses and the like),—the Gladioluses will flower in July and August, and as soon as they are done the Tuberoses (not *Tuberosæ*) will follow till frost. Both Gladioluses and Tuberoses will push through the Verbenas without receiving any check.

As soon as the first white frost blackens the leaves, take up the Tuberoses, dry them a little, then cut down the dried leaves to the bulbs,—and stow away

in some place secure from frost till the Spring comes. The said "place" should not be too dry. Under the stage of a very cool greenhouse is a very good spot to keep them in.

In the Spring of the year, when about to set out the bulbs, all the offsets that part readily from the parent bulb may be taken off, and set out by themselves in a garden border,—towards Fall some of these may be sending up flower shoots, and if these are taken up, carefully potted and put in a warm greenhouse they will flower towards Spring. Indeed with a little management in the selection of bulbs, and the commaud of a little heat, the Tuberose may be had in flower most of the year.

CLASSIFICATIONS OF FRUITS.

We have so often pointed out the want and the practicability of a better system of classification of fruits, that we can add little more now that will be new; but we are certain the evil will never be remedied unless public attention is repeatedly called to the evil we now endure. The reply to all we have written on the subject is that a better system than any of those we have is not possible,—but we are quite sure that not only is a better system possible, but it would be a very easy matter for one of time and acquaintance with the subject to accomplish it.

There are scores in the Union who could do it if they could only be brought to think so.

We are pleased to find our excellent contemporary, the *Country Gentleman*, calling attention to the same matter. In a recent article, though no suggestions are made in aid of such a system as we ask, it shows conclusively that the reasons offered involving the impossibility of such a system have no weight.

At present Pomology is not a science. It is a mere trial of memory to recollect names of fruits. The descriptions of fruits as given in the books are of no use to identify an unknown variety. If memory will suggest a name, the fruit book will aid us in deciding whether it is or not that kind. It will do no more.

A better system could be made in this way:—Taking the Pear as an illustration,—get together all the known varieties, group them together according ing to their general resemblances; then describe all the characters which they all have in common, name the group after the best known one. In describing the individuals of that group, all that would be necessary then would be to show in a few words, how that one differed from the rest of that group. Suppose we made a Bartlett group, then take a Clapp's Favorite and note some character which the others in the group never had; *that* alone would be quite sufficient to identify it. "But," says a friend at our elbow, "it would be necessary for a novice to know the Bartlett before he would know the group." Not at all; it is with the description of the group we have to deal, and not with its name, which is of no moment whatever. It is neither any objection to such a system that varieties vary in form, color, flavor or any thing else, for if they do vary it is not towards, but away from other forms. If a fruit is not known through their vagaries, it is rarely confounded with any other kind. There is no science in which these variations of individual forms are not observed, but they do not make that science any the more impossible of methodical arrangement.

To give a better instance of this, we may take one of a Pear that came before us for name,—we did not know it. We showed a specimen to four of the best Pear students in the United States—but none knew it. Afterwards something suggested to us it was Doyenne Boussock, and after it was suggested, all five readily recognized it as that well known variety, notwithstanding its singularly unusual appearance. The moral of this is, that notwithstanding the variations, there must have been enough of Doyenne Boussock left, or it could not have been afterwards recognized. Memory was unable to the task of recalling the features, but a description would have fixed them,—and a methodical arrangement of the descriptions, so that we could readily come to the one wanted, is all the thing we seek. Indeed, we do not understand how any logical mind can see any impossibility in such a system as we have contended for.

Classification is simply the bringing together of things which are alike, for the better ability to find them when wanted. It is simply method; and is a mere business matter, for which nothing more is wanted than a thorough knowledge of the materials. We are quite sure we could name many American Pomologists well fitted by leisure and ability to make such a classification if we could only get them to understand our idea of what it is we would have them to do.

The time is now approaching when all over the land Pomological Societies will be holding their annual meetings,—and the members get together to talk over the best means of advancing the study of their loved pursuit. We trust this subject will have its due share of consideration; and that eventually out of the present chaos order may come.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

A Grape-vine Enemy.—*J. Stauffer, Lancaster, Pa.*—In the December number of the *Gardener's Monthly*, on page 364, I notice the figure of a caterpillar under the article 'Insects in the Orchard.' My attention was arrested by this figure, being very desirous to know what Dr. Houghton had to say about it. As, however, no allusion is made to the cut, I am at a loss to know why it leads the article.

The cut, however, is an accurate figure of a mischievous scamp brought to me, in the first instance, by a neighbor, who detected him in the act of biting off a bunch of young Grapes, in July, which accounted for other bunches found under the vines previously.

This caterpillar looked, about the anterior portion, like a young bull-dog-pup, of a light brown color, with a series of blue spots encircling the rear of the enlarged and confluent segments, elevated with the 3 pair of pectoral feet drawn in, and the two blank segments almost in a perpendicular line with the first pair of pro-legs, just as represented by the cut above referred to.

I noticed the expulsion of the stink-horn (or Nucial fork) from the nape, behind the head proper, and by that, knew him to be the larva of a Papilio.

It was on the 23rd of July, 1861, I put him into a box; on the 25th I found him suspended by a bridle and entering into the chrysalis state, which I also figured. On the 7th of August I heard a noise in the box; on opening it I found the imago: and it proved to be what is called the Papilio glaucus:—the black, blue, and yellow spotted swallow-tailed butterfly.

The under side of the wings show markings similar to that of the *Papilio turnus*; which latter, however, is yellow with black bands, and looks like a different species, which I have also raised from larvæ taken from the spice bush and sassafras, and this is of a green color, and otherwise, very distinct in appearance and habit from the former.

Nevertheless, some respectable Entomologists assure us that the one is the male and the other the female. It may be true that the *male* and *female* differ in color. Yet the conviction is forced upon me from the difference of the larva and their habits, that they are two distinct species,—whatever others may say of them as being seen under circumstances to prove them to be of different sexes.

I can not understand how it is that those found on the Grape are of a larger size, different in color and form, should develop one sex, and those on the spice bush, that of the other sex. Separate and distinct trials with the same results confirm me in my views.

Nevertheless, having knowledge of the evidence advanced, and equally conclusive on the other side of the question, I am desirous to hear from others who have taken the trouble to collect the larvæ and breed the imago.

Will Dr. Houghton inform us whether he detected his larvæ feeding on the Grape-vine? I would caution Grape growers to have an eye to this insect. Several facts have come to my notice that it is very injurious to vines by cutting off the young bunches of Grapes; though, as yet, seen but in a few localities.

I could furnish you with a drawing of the larvæ, (which you have however,) the chrysalis, and the perfect insect.

[We ought to explain that we were so pathetically impressed with the plaintive recitals of the Doctor's struggle with insects, and other woes and ills of fruit culture, that our "heart was too full for utterance" in the usual way, by a note at the foot. We therefore selected the portrait of the "horriblest" bug we knew of and put it at the head of the article, alike to express the depth of our feelings, and give our readers a foretaste of the soul-harrowing ideas which they would undergo in the article to follow.

Dr. Houghton is in no degree responsible for its appearance there,—but he will thank us now for it, if he has not done so before, since it has brought from Mr. Stauffer this full account of the doings of a formidable enemy to the Grape-vine.]

Hybrid Ferns—"*Student*" writes: "In a recent number of the *Gardener's Monthly* you speak of *Hybrid* Ferns. As I understand Botany, Ferns belong to the *Cryptogamic* plants, or that class which has no stamens or pistils. How can there be hybrids in such cases?"

[When the order of Cryptogamic plants was so named, it was supposed they had no organs of impregnation, which are of comparative recent discovery—first noticed, if we mistake not, by Nageli in 1844. Hybrid Ferns, however, had been known before, without any understanding of how it was accomplished. Gymnogramma Mertensii, for instance, was raised in 1837, between Gymnogramma chrysophylla and G. Calomelana. It is believed, indeed,

that Cryptogamic plants hybridize more readily than flowering plants. There is a hybrid moss, between two distinct genera, known to Botanists, the name of which we do not now remember, but raised between the well known and common moss, Funaria hygrometrica, and the Phsycomitrium fasciculare.

We believe no popular treatise on the hybridization of Ferns and Mosses has ever been published. One of the most accomplished students in the world in this interesting branch of the vegetable kingdom, is probably Mr. Thomas P. James, whose essay on Ferns and Mosses, before the Pennsylvania Horticultural Society last year, is familiar to our readers. If he could spare time to give our readers a chapter on the subject it would be appreciated.]

Value of Back Volumes—Nursery Catalogues—*Rev. Henry Ward Beecher* writes: "I send my annual dues for the *Gardener's Monthly*. It is not only one of my necessaries of life, but a luxury as well, and I cannot afford to do without it. A good gardening paper, unlike a newspaper, is as good five or ten years after date as when issued. In numbers of Dr. Lindley's English *Journal*, which I used to take twenty years ago, in Indiana, are good reading yet. There is much in Horticulture that is fanciful and tentative, which is of little interest after a year or two; but it was of just as little use or interest when published.

Do you think it honest or honorable for a nurseryman to publish in his catalogue a full list of all trees and shrubs in all their varieties, take an order from a gentleman for fifty or sixty kinds, without a word, and then at the very heels of the season, send two species only out of fifty, saying that they had none of the others? I lost a year by such treatment at the hands of a Boston nurseryman, and I did not like it, and do not yet."

[A nurseryman may, by a sudden turn of popularity on a particular plant, get unexpectedly "sold out" of some items named in a catalogue. Very rarely can any nurseryman keep constantly on hand everything in his list. Some unprincipled firms take advantage of this to get out long lists of things which they never have—simply for effect—trusting to chance to get them if ordered. Mr. Beecher's note will have the effect of calling attention to this evil. In the case he mentions, if by any stretch the conduct can be termed honest, it certainly was any thing but honorable.]

Sowing Magnolia Seeds—*E. N. P., Galesburg, Ills.*, writes: "Meehan's 'Handbook,' in speaking of the Magnolia, says: 'plant seeds as soon as ripe,' and yet I know of some being planted here in the spring. How can the seeds be preserved through the winter, and when should they be planted in the spring? is a question which often arises in the mind of a beginner, and which I would be pleased to have you answer."

[There are many seeds which, if their shells are once allowed to harden, take a long time to soften. The Magnolia is one of these. If dried through winter, and sown in spring, they will not come up till the spring following, and if very much dried will not come up at all. Sowing "as soon as ripe," is the best security against this risk.

But if kept *cool* from the time of ripening until the spring comes, and then sown early, they will do as well as if sown as soon as ripe. It is heat which dries and injures seeds; and the whole secret of keeping seeds of any kind for spring sowing, is not to *let them dry up.*]

Iona Vines from Vineland.—*Mr. J. W. Cone* sends us samples of vines one year from eyes, raised in the open air, to show what Vineland can produce. They are equal to the best any one can grow, and although Vineland may be a "sandy spot," it is not by any means a *barren* sand.

The best Concords we saw anywhere the past season was at Mr. Cone's. His crop looked so tempting that some straggler who had dropped in ahead of us gave him $10,000 for his 15 acre farm, a rise of $7000 over what Mr. Cone gave four years before. We thought highly of Vineland, and of the enterprising people we found there. We are glad of the chance to say this, as we had not a very high opinion of the place previously to this our first visit.

White Black Cap Raspberry.—*Mr. Mattison* writes: "A friend of mine who had a fine row of the common Black Cap Raspberry, found in the row a seedling that came up. The wood is bright yellow, also the fruit; it has the appearance of a regular Black Cap, with the exception of the color of the wood and fruit. I am informed that it is as productive as the common Black Caps. Would something of this kind be desirable if it should prove equal to the common Black Cap?"

[White Black Caps are not uncommon, but none have been found so hardy, or to bear so well as the others, which, by the way is another instance of the the correctness of Dr. Stayman's theory of color and hardiness.]

Catalogue of Roses.—*M.* writes: "In a recent number of the *Monthly*, a wish was expressed

for a complete list of Roses. Would such a list be acceptable to the pages of your journal? If so, please request nurserymen and others having collections to forward their Catalogues to

Rose, care *G. Monthly*, 23 N. 6th St., Philada."

[A descriptive list of all the best known Roses would be too lengthy for our pages,—but we think if such a list were prepared and offered for sale, in pamphlet form, no Rose-grower but would cheerfully pay for it, and feel accommodated besides. Our correspondent "M." is a very reliable gentleman, and we hope he will undertake it, and that our Rose-growers will send him their lists as suggested. We should know by this means what Roses are really in our country.]

Smart Weed.—Our good friend Thurber, in a kind notice of the *Gardener's Monthly*, which he characterizes as "so useful and excellent an (*a?*) Horticultural journal," corrects an error of ours in calling *Polygonum persicaria* "Smart Weed," when it should be "Lady's Thumb." We supposed, as Dr. Thurber does, that Polygonum hydropiper could not be meant, from its acridity, and inserted "Polygonum persicaria" on our own responsibility, in our correspondent's communication. We have since been informed that cattle are really found of *Polygonum hydropiper;* and to decide the question, we should be obliged to Mr. Sinclair for a specimen of his plant.

Thuja japonica of the Patent Office.—In our last we stated that the specimen sent us by Mr. Buist was Retinospora *pisifera*,—but after we sent the notice to press, we had reasons to doubt our decision; we therefore enclosed the specimen of Mr. Buist to Dr. Gray, who writes: "The specimen sent is clearly the same as my specimens of Retinospora *obtusa*, of Japan (Cupressus)."

Fall-bearing Blackberry. — *Mr. Mattison* says: "Some five or six years ago, one of my neighbors was in New Jersey, selling trees, and selling in the vicinity of where the Kittatinny Blackberry originated, he procured some plants and brought them home with him, and distributed them to different persons, and they have now fine patches. Conversing with one who has some 40 or 50 plants, the other day, he says that they are all that could be desired. Some of the bushes bore up to near autumn. They are perfectly hardy, having past through our very severe winter of '66 unharmed, which is one of its finest traits. It was brought here under the name of Hoffman, if I remember correctly. The Lawton freezes here badly in any winter, unless protected."

[A Fall-bearing Blackberry would be a great acquisition to the fruit lists.]

Specimens from Texas. — Mr. Watson, of Brenham, send us a box of fossils and specimens of the woods of Texas, with the following kind note:

"I send you to-day, express paid, a box of fossil wood, found in our section, and specimens of living wood, which I beg your acceptance of as a small acknowledgment of the value of the information I have derived from the *Monthly*."

Our kind friend could not have sent us any thing more likely to be prized by the Editor, and we return our best thanks for them, and the spirit which prompted the gift. It will be an additional incentive to our endeavors to make our journal useful to all.

Great Yield of Potatoes.— *W. Saunders*, of the U. S. Experimental Garden, writes: "From 1 bushel of the Harison Potato, I got 35 in return." Can this be excelled.

Native Country of the Delaware Grape.— Our friend, W. R. Prince, does not wish it to go on record that "no one now disputes the native origin of the Delaware Grape." We think at any rate he alone has that honor.

Crassula lactea—*P. B.*.—I saw once a recommendation to include *Crassula lactea* in a collection of Winter-blooming plants. I do not find it in any catalogue. Is it rare? Is it good for any thing? Is it easy grown when got?"

[Not at all rare, in every old collection, we believe. To the other questions we say yes, decidedly.]

Propagating Angers Quince—*P. S. W., Middletown, Va.*—Will you be so kind as to tell me how to propagate the Angers stock, for dwarf Pear purposes.

[Cuttings taken off in October or November, and planted in good rich soil, root readily. If there be danger of thawing out in winter, cover with any rough material.]

Books, Catalogues, &c.

Bulbs.—By E. S. Rand. Published by J. E. Tilton & Co., Boston.

Another of a series of beautiful and useful works for which the publishers deserve the thanks of every

horticulturist. Strict truth will not permit us to join with some of our contemporaries in pronouncing it a work of perfect merit, and we have taken occasion, in another column, to show an instance of short-coming which is by no means the only one. But, saying this much as due to the facts, we have much pleasure in saying that we thank Mr. Rand for what he has done. He found the subject in great confusion, and yet one on which all were looking for enlightenment. A book on Bulbs was more wished for, perhaps, than one on any other topic; and yet we hardly expected any one would have the courage to take it up. If not as perfect in some respects as we could wish it to be; it is, we think, the best that any one could do with the subject in the present state of things, and it is very welcome to our Book table.

THE AMERICAN JOURNAL OF HORTICULTURE.—Published by J. E. Tilton & Co., Boston.

We have looked for the appearance of this Journal with considerable interest, because we honestly felt that in a particular department of Horticulture, which we have never made any pretension to fill, there was an excellent chance for a first-class Horticultural journal to take up a career of unlimited usefulness, from the point suddenly arrested by Downing's death. We were led to believe that such was the aim and object of our proposed contemporary, and we prepared ourselves to extend to it a cordial welcome.

The number for January is now before us, and we find from the introduction that "a number of gentlemen" felt the want of a "Horticultural monthly of high character and liberal tone," so they concluded to start "a magazine twice the size of any now published in the country;" and they tell us "our" course in the management will be independent, "having no interest in any horticultural establishment." Who the "our" represent we are not told, as no editors names are given. Report says Mr. Bliss is one of the editors; but this cannot be, as he is interested in a Seed store. Other reports say Mr. Rand is an editor; but this can neither be as Mr. Rand is a horticultural author, and of course interested in the sale of his books before anybody else's books. Neither can the Publishers be the Editors themselves, as they are largely interested in the sale of gardening works. Who, therefore, are these extremely uninterested persons represented by the editorial "we," does not appear.

If the "no interest" rests on no better foundation than that of "they publish a magazine of double the size of any now in the country," the statement is not worth much. There is no magazine in the country which gives as much as the *Monthly*. We publish, in each month's number, 1496 square inches of matter closely spaced for $2; they give us 1508, only *twelve square inches* (⅛ *of a page*) more than we do, and that very widely spaced out, for $3. A long way off from being double the size.

We welcome the filling up of vacant places in horticultural literature,—more than this we court fair and honorable competition; but, above all, we like the truth.

One word more about our connection with a horticultural establishment. The publisher of this magazine sells Agricultural books,—so do Tilton & Co.,—and we are square. The editor gave two years of hard service to establish the Journal, for nothing, and all the subsequent years for next to nothing, in order that the public might have a larger amount of *reading matter than any magazine* will ever offer in this country for the same money. His living is his nursery. If he has used his magazine to help along his own business to the sacrifice of the business interests of any one of his readers, he will let them be the judge; but he desires to say that if an editor is weak enough to let sordid motives cloud his ideas of justice, he need not have an "interest in a horticultural establishment" to bribe him to do so. An editor can be bought and sold by other means, and the cry of "no interest" serve most admirably to cover up the misdeed.

It is remarkable that this slur on the impartiality of an author who has "connection with a horticultural establishment" should come from a paper whose best contributors are of that class. Mr. Parkman is a nurseryman; Hammitt Billings is a professional architect; E. S. Rand, as we have said before, is an author; W. C. Strong is a nurseryman, and we believe two of the other four contributors are interested in pursuits which a horticultural journal, biased by prejudice, could favor, if so disposed. We wish to meet this objection now, because once before it was made by a journal, which, however, the public verdict soon condemned. We did not notice it then, because the paper had no pretension to being "high toned," as this one has. We will state squarely that, in the United States, no horticultural magazine can become popular, and continue so, that is not conducted by a professional horticulturist. There may be objections to its being so, but it has to be that or nothing.

The oldest magazine in the country was started and is continued by a nurseryman. The most popular one, *the Horticulturist*, was began by A. J. Downing, the Nurseryman, and continued to his

death, by A. J. Downing, the Landscape-gardener and Rural Architect;—and so of other instances. The reason of this is that we have no immense private establishments in this country, where, at an enormous expense, every branch of gardening is carried on merely for the love of it; and where the knowledge and experience which is to fit one for doing justice to the editorial chair is to be found. It is only in what is slurringly spoken of as "horticultural establishments," that immense gardening capital, in America, finds encouragement; and so well is this known, that the chief difficulty American gentlemen find in keeping gardeners is because the general course of an intelligent gardener is, some time or another, to "start for himself."

It is the universal practice of American gentlemen to apply to the American nurseryman for advice. Every nurseryman's table groans with correspondence, and his steps all over his grounds are dogged by inquirers of this character. People prefer the chance of interested intelligence to disinterested ignorance. That is the amount of the whole story.

To show how this pretension of not "having an interest" works, in the number before us we see two pages of the most fulsome adulation of a book which Tilton & Co. have for sale;—the same firm being publishers of the magazine!! No other notices of new Books appear, though several have recently been issued from the press.

We regret to have to make these severe remarks, for we wished to give a cordial welcome and an assisting hand; but the publishers, or whoever may be the editors, have themselves made the issue, and in self defence we naturally meet it. Having said this much as due to ourselves, we would forget the unpleasant topic; and examining the work itself irrespective of its motives, feel free to say, that the articles are of first-class excellence, and the whole getting up of the magazine is good, and altogether a credit to Boston Horticulture, and we wish it success.

The Atlantic Monthly. — Our literature abounds with serials which excite the affections, and appeal to the passions, — and others are devoted to abstruse science, which leaves the readers, each for himself, to apply what he reads to useful purposes. But magazines which encourage the reflective faculties are not by any means so common as we would like them to be. The *Atlantic Monthly* is one of the few which, on this ground, is always welcome to our tables. There are many subjects treated of in it, of course, with which a horticultural paper has nothing whatever to do; but yet so much that has reference to the proper enjoyment of country life, and which, all who have the least interest in rural pleasures, will enjoy, that however much people may differ in opinion as to the subjects and the reasonings of some of the articles, it is the most popular magazine, among people who like to encourage the thinking element, of any probably in existence.

New and Rare Fruits.

Arnold's No. 1 Grape.—*See Illustration.*—We recently referred to Mr. Arnold's wonderful improvement of the Clinton Grape. We have now the pleasure of giving an illustration of the best one. Usually engravings of fruits have little value, as there are so many like each other in mere outline; but in this instance a comparison with Clinton will show at once the great march of improvement. We are sorry a name has not yet been assigned it, as Mr. Arnold will not, we hope, distribute it by numbers.

New and Rare Plants.

In the latest issue of the *Botanical Magazine*, the following plants are figured and described:—

Cælogyne corrugata.—This species is distinguished by the wrinkled appearance of the pseudobulbs, and by the racemes being three to six flowered; the flowers white, with the exception of the limb of the lip, which is yellow.

Cotyledon fascicularis.—A fine South African succulent plant, very glaucous, with the leaves one-third of an inch in thickness, and long campanulate red flowers.

Glyptostrobus pendulus.—A tree closely allied to the well known Taxodium distichum, from which it differs in the foliage not being distichous, in the seeds being winged, and in the great slenderness of the twisted stem.

Helipterum cotula.—A pretty yellow and white-flowered everlasting; introduced from West Australia by Mr. W. Thompson, of Ipswich.

Bolbophyllum reticulatum.—The finest of the gems; the foliage eminently beautiful, owing to its elegant reticulation.

Musschia Wollastoni.—A beautiful cool greenhouse shrub from Madeira. It is closely allied to campanula. The flowers are yellow, with stigmas in such a state of development that they give to the flower the appearance of having another flower thrust within it.



In the latest issue of *L'Illustration Horticole*, the following subjects are figured and described:—

ELAIS GUINEENSIS.—A fine tropical palm which attains a height of forty to sixty feet. It is of graceful habit, the head resembling a gigantic plume of dark green feathers.

CAMELLIA MISTRESS DOMBRAIN.—A beautifully imbricated flower; blush with soft lilac shades.

JACARANDA DIGITALIFLORA ALBIFLORA.—A superb white-flowered variety of this noble plant, which is rarely seen in flower in our collections.

PRIMULA INTERMEDIA.—A charming garden hybrid; the flowers in dense trusses, the color deep purplish-crimson, with distinct yellow eye; quite a gem among herbaceous plants. It was admirably shown by Mr. Bull at the Metropolitan exhibitions, in the spring of 1866.

CAMELLIA MARIANNA TALENTI.—A fine Continental variety, remarkable alike for its foliage and flowers. The latter are large, hemispherical and of great substance; the color bright carmine red, with a few distinct and sharp stripes of white.

JUGLANS MACROPHYLLA.—From the North of China. Leaves upwards of 3 feet long, and the fruit 15 to 20 in a cluster. It is perfectly hardy, and altogether one of the most beautiful foliage plants ever introduced.

TAXUS ADPRESSA STRICTA.—Has leaves precisely like T. adpressa, but every plant is furnished with a strong lead, which it makes even from a side branch.

ANTHYRIUM GORINGIANUM TRICOLOR.—This is a most beautiful hardy variegated Fern. One cannot conceive a more beautiful object than a plant of this, growing on a shady bank or rock-work out-of-doors.

Domestic Intelligence.

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.—We stated, last spring, that this Institution would attempt to raise $100,000 before January 1st, 1867, to build itself a New Hall. As this Society is a source of national pride, in many respects, we hoped subscriptions would come in from all quarters. The amount has, we are much pleased to say, been raised, but entirely by Philadelphians, and *nearly one-half by the members themselves.*

THE HALL OF THE PENNSYLVANIA HORTICULTURAL SOCIETY, now being built on Broad Street, will be the largest Horticultural Hall in this country, —and probably in the world. The entire building is 75 feet front by 200 feet deep, and 60 feet high, being as long as the upper saloon of the Chinese Museum was before it was burnt, and 15 feet wider, with a ground floor longer than that of the lower saloon of the Museum building, The Hall will, therefore, enable the Society to get up their Autumnal Exhibitions on a scale of splendor fully equal, if not superior, to those held in the Chinese Museum.

Water pipes will be introduced into the building for the supply of fountains, cascades, &c. A narrow gallery will extend around 3 sides of the Hall, which will enable visitors to look down on the entire display. The Hall will be brilliantly lighted with triple rows of brackets, with 3 to 5 gas lights on each (covered with ground glass globes) extending around the sides of the Hall, leaving a clear space in the middle of 70 feet wide by 50 feet high, and nearly 200 feet long;—this includes the Foyer, a beautiful room of 30 by 70 feet, with 30 ft. ceiling,—opening into the main Hall,—in which the monthly meeting of the Society will be held, and in which its valuable Library will be placed.

The Ladies of the Society will hold a grand "Bazaar," for the sale of horticultural, floricultural and fancy articles, on the 29th of May, next, in the New Hall, at which time the Society will also hold its Spring Exhibition and competition for Roses, Strawberries, &c., the whole forming a grand Horticultural Display and Bazaar, the proceeds of which will be devoted to decorating the Hall. It has not yet been decided when the formal opening of the Hall will take place, but early in the spring of 1867, of which due notice will be given.

STRAWBERRY CULTURE NEAR BOSTON.—At the last New York State Fair, Marshal P. Wilder, of Boston, said he disliked to make large statements, but it was no uncommon thing to produce 4,000 quarts per acre, of Strawberries, in the vicinity of Boston. The best method of cultivation is to turn over a piece of new land that never has grown the Strawberry, and dress it with ashes. Plant in the spring, take only one crop, and then plow up. This is the system very successfully practiced at Belmont, in the vicinity of Boston. It is the perfect system. Growers generally get from 3,000 to 4,000 quarts per acre, and they bring the highest prices. Our standard of berries is high, and we are not satisfied with the Wilson. It will not bring, in the Boston market, more than two-thirds as much as some other kinds. The popular berry with us is Hovey's Seedling. It is a pistillate, and requires skill in cultivation, but will produce the most money.

Mr. Barry said, that a few years since, he was convinced, from the show in the market, that Hovey's Seedling satisfied the Boston people. Brighton Pine should be grown with it as a staminate. The Belmont cultivators allow it to spread,—do not clip the runners. The great secret is to use new land and make an annual crop of it.

Pyramidal Training of Grapes.—We have often heard the remark that the Isabella Grape bears better when allowed to extend itself among the branches of trees,—this is doubtless for the reason already given, namely, plenty of room for its growth. This mode has been lately modified, by providing supports for the vine similar to those often provided for ornamental climbers, by inserting into the ground the stem of a tree, with the branches trimmed and cut off at a uniform length from the body, but tapering upwards in the form of a pyramid. The vines, properly trained on these, and thinned during the summer, present a beautiful display when loaded with the ripened purple clusters. The best kinds of wood for these supports are cedar and locust. The former gives the handsomest shape, but Locust trees may be occasionally found that answer an excellent purpose with some care in the training.—*Country Gentleman.*

Summer Apples adapted to the Soil and Climate of the South.—The following varieties have been tested, and found to stand the heavy rains of last spring, not one speck of rot or sting of an insect could be found in them. I had a full opportunity of testing them at General Griffith's place, near Jackson, Miss. :

Astrachan Red.—Fruit above medium ; roundish, flattened; greenish yellow in the shade, but mostly bright crimson, overspread with fine white rich bloom ; flesh pure white, tender and crisp. Ripens first of June.

Bevan's Favorite.—Fruit medium ; Flesh rich yellow, of a high aromatic flavor. Ripens 15th of June.

Early Harvest.—Fruit above medium, round ; skin very smooth, greenish white, changing to straw color as it ripens ; flesh white crisp and juicy. Ripens 15th of June, and continues on until the first of July.

Early Joe.—Fruit below medium ; skin smooth, yellowish, shaded and striped with red ; flesh white, tender and juicy. Ripened this summer the 16th of June, and continued until the 5th of July.

Red June (Carolina).—Fruit medium ; skin smooth, shaded with deep red, changing to purple on the sunny side ; flesh white, tender and juicy, with a brisk sub-acid flavor. Ripened the 10th of June this summer.

Early Pennock.—Fruit large ; skin light yellow, splashed and shaded with light red ; flesh white, with very pleasant flavor. Ripened last of June.

Primate.—Fruit medium ; skin greenish white, with a crimson blush on the sunny side ; flesh white, very tender, with a mild sub-acid flavor. Ripened the 5th of July.

The Yellow Horse Apple rotted very bad this summer, and has for the last three summers proved a failure.—Jas. Parker, in *Southern Ruralist.*

Apples Half Sweet and Half Sour.—In the American Institute Farmers' Club John G. Bergen revived the oft-exploded notion that Apples can be grown, at the will of the cultivator, so as to be partly sour and partly sweet. Such had been lately exhibited to him by Mr. Kimball, of Brooklyn, which he said grew upon a tree in Connecticut, and that the origin of the sort was the uniting of two buds, one sour and one sweet, which being inserted in a stock grew into a tree which produced these hybrid Apples.

Solon Robinson said, to put an end to this matter, I make this public proposition,—that whoever will produce an Apple, by inserting the halves of two buds from sweet and sour trees, so distinctly marked that it shall be indisputably produced by such union,—for instance, the sweet half shall be of a red Apple, and the sour half a white, yellow, or green one, or showing any other characteristic of distinction which mark the parent trees,—he would pay the first producer of such Apple $100, whenever it is exhibited before this Club, with sufficient proof of the manner of budding and growth.

Horticuture in Brazil.—They have had a great Art Exhibition in Brazil. A correspondent of a daily paper says, in reference to the Horticultural department :

"One side of the quadrangle has been fitted up to represent a part of a Brazilian forest. Some rare tropical trees and plants are admirably grouped ; a great variety of parasites a;e scattered among the branches, on which are seated life-like birds ; snakes and other reptiles abound, and the tiger appears ready to spring upon his prey. A stream comes trickling over the moss-covered roots into a pool, in and around which are rare acquatic plants. An Indian of the Amazon valley with his bow-gun, and a squaw with a papoose in her arms, seated in a hammock, suspended from the branches, assist to com-

plete the tableau. This is, at night the most attractive part of the exhibition.

Rossitor, the horticulturist, has fitted up one of the enclosures with trees and plants of the country; and, under a shed adjoining, is a collection of logs of Brazilian woods with the bark on, as well as samples of the same plain and varnished. One apartment is devoted to the fibres, with cordage and cloth made from them; they are so numerous and varied as to baffle description. The potato tribe is well represented, and one potato from the valley of the Amazon, measures twenty inches in circumference, and weighs thirty pounds; some of these are growing on the shelves, and the stalks are green and vigorous.

Foreign Intelligence.

Bedding Lilies.—*The Gardener's Chronicle* says:—We cultivate Gladioli in profusion, it is true, but the noble Lilies, by far finer than any Gladiolus, are rarely grown in our gardens; though, when once planted, they require no attention, except to be kept clear from weeds. No gardener who had once seen what beautiful beds may be made of this family alone, could resist the temptation of such a glorious garden ornament. With such kinds as Lilium testaceum and Tigrinum Fortunei in the centre, surrounded by the queenly candidum, burnished croceum, spotted canadense, pomponium, and colchicum, and the vivid chalcedonicum, and gradually worked down to the edge with such dwarf but beautiful kinds as pulchellum, eximium, longiflorum and tenuifolium, a large circular or oval bed might be made on the grass, in some isolated spot, which, for the highest beauties of color, form and fragrance—for, in fact, almost every quality by which vegetable beauty endears itself to us,—could not be equalled by any arrangement of in-door or out-door plants that we can call to mind. The only precaution we need mention is, that to grow Lilies well they should have 3 feet, or nearly that, of free loamy earth, with a good dash of vegetable mould in it.

Some may say such an arrangement would "interfere with our bedding;" but there are very few gardens which could not afford a quiet spot for some such arrangement as this; and it is our lot to yearly walk by scores of miles of Grass margins to plantations, and undulating fringes of turf in pleasure-grounds, where select beauties of this kind might be introduced without in the least interfering with anything, but, on the contrary, adding a distinct and marvellous charm to spots which before presented nothing but blank vacuity, as regards floral beauty or interest. L. tenuifolium would flower very early in summer, brilliant as the Scarlet Pelargonium, and then the stately group would come in one after another, till lancifolium, (which does beautifully in warm places and in light, well-drained soils, in the open air,) in great variety, passed on her way in autumn.

Close-pruning Grape-vines under Glass.—The editor of the *Gardeners' Chronicle* asks:—The fine old Vines at Cumberland Lodge and Hampton Court are pretty well known; but in those gardens, though the bunches are numerous and the Grapes excellent in quality, the bunches rarely exceed from half a pound to a pound in weight. Still the weight produced is enormous, and leads us to ask, if a single Grape-vine, with roots uncontrolled, will assume such unusual proportions with such remarkable results, are we right in confining our house vines to a single rafter, their roots being of course restricted in the same proportion?

Orange-tree Plagues in Europe.—"The Coccus hesperidum, of which mention has been made as one of the afflictions from which the Orange trees have suffered seriously, is an insect well known to English exotic gardeners as attacking the Orange-trees in greenhouses, &c. It is one of the 43 species of the genus Coccus, (order Hemiptera,) and is commonly known as the greenhouse bug. It is oval, oblong, brownish in color, and covered with a sort of exuding varnish. The male Coccus of this species is a minute fly. The female having no wings when young, runs over the trees, and finally settles upon some leaf, where she deposits and hatches an infinity of eggs, and then perishes. The more distinguished species of this genus is that which feeds chiefly upon the Cactus Opuntia, which is therefore denominated the Coccus Cacti, and the origin of which has been traced to South America. This species is the valuable (though no less destructive) Cochineal insect of commerce. Frequent manipulations, and treatment with any pungent, insoluble powders, (not injurious to vegetation,) such as peppers, raw sulphur, &c., are amongst the best of corrective appliances as against the Orange tree Coccus. The Lagrima is one of those maladies which commonly result in all organic bodies as the effect of exhaustion, and is probably due, in these islands, to the unchecked depredations of the Coccus. It is a degenerated form of Orange dew, otherwise known as Orange manna."—*Consul Vine's Report to the English Government.*

The Narcissus.—Of the several classes of bulbs that make our windows and gardens gay in spring, this is by no means the least interesting. The flowers yield a rich perfume, which, however, in a confined atmosphere becomes sickly and unbearable. Maund, in his "Botanic Garden," says, "The agreeable perfume of this plant, when diffused through a close apartment, becomes decidedly deleterious by producing headache, giddiness, and other affections of the brain. In the garden, when mingled with a wholesome and exhilarating atmosphere, amidst objects that awaken the most delightful sensations of our nature, these sweets are a part of our gratifications, and health is promoted as a consequence of enjoyment so pure."

Ovid informs us that the Narcissus commemorates a self-enamoured youth changed into this flower; but Pliny says, "It produces dull heavy headache; hence it received its name from narce (torpidity), and not from the youth Narcissus, as mentioned in the fable.

The section known as the Polyanthus Narcissus (Narcissus Tazetta vars.), from a similarity of arrangement of the flowers on the stalk with those of the Polyanthus, comprises the best of these interesting plants. The bulbs are annually imported from Holland in large quantities, and many of the varieties are to be obtained at a very reasonable rate. As regards cultivation, ordinary treatment is all they require; in or out of doors they succeed well, and even under most disadvantageous circumstances they will flourish out of doors. They are, however, apt to suffer from frost, which sometimes makes sad shipwreck of the delicate tints and fragile structure of the flowers.

In regard to colour, there are yellows, whites, whites with orange cups, and whites with citron and lemon cups. There is not much variety in these divisions of colour; on the contrary, there is a great sameness among many of them; but Dutch growers either do not possess that skill in hybridization which exist in England, or the results of its application as regards this flower are very unsatisfactory indeed. Of white flowers there are the Single Italian, a paper white; Grand Souverian, Reine Blanche, and one or two others that appear to possess a plurality of names; with the exception of the first, which cannot be too highly recommended, the others are little grown. Of yellows there are Juno, Staaten General, La Favorite, Primo Sterkhoren, and L'Etoile d'Or, but, excepting the two first and the last, they are but little known. L'Etoile d'Or deserves a larger share of recognition than it has yet received; it is a dwarf kind, being only about twelve inches in height, and in colour deep golden yellow. It flowers very freely, and is therefore well adapted for pot culture; it cannot be too stongly recommended. The two largest divisions are those possessing white flowers with orange or with lemon or citron cups. Many of these flowers though denominated white, are not really so, being suffused with a pale sulphur. There has not yet appeared what would indeed be a great desideratum, viz., a yellow or orange flower with a pure white cup. This may possibly, however, be in store for us, and that at no distant date, as the demand for new Hyacinths is giving an impetus likewise to the production of newer and better varieties of Polyanthus Narcissus.

The best of all the varieties having white flowers with yellow cups is Bazelman major. From the spathe surmounting the flower-stalk issues seven or eight very large and showy fragrant blossoms. Though this variety does not produce so many individual flowers as some others, the loss is amply compensated for in the unusul size of the blooms. No variety taxes the energies of our bulb importers to provide a sufficient supply of so much as this, the demand for it being great. Florence Nightingale and General Windham are two fine varieties, having white flowers, with deep yellow cups; from the last named, and also from Czar Alexander, a sulphur flower with golden cups, have been seen flower-stalks surmounted with eighteen or twenty blossoms. Other good varieties are Gloriosa, with yellow cups; Grand Primo and Grand Monarque, both with lemon cups; and Grootvorst, with citron cups. There are also yellow-flowered varieties of both Grand Monarque and Grand Primo, but it is the white-flowered kinds that generally find their way into the London market.

Of yellow flowers with lemon or orange cups, we have Soliel d'Or, bright in color, with lemon cups; Lord Canning, sulphur, with deep yellow cups; Sir Isaac Newton and Sulphurine, both with orange cups; and Belle Princesse, with bright golden cups.

In each division of color, sameness is inevitable, and the yellow flowers with orange or lemon cups seem to glide almost imperceptibly, as it were, into self yellow flowers. One half-dozen varieties of Polyanthus Narcissus, carefully selected, may be made to include all the real distinctness that exists among them.

The Double Roman Polyanthus Narcissus has an individuality of its own, and there is no great anxiety on the part of growers of the Narcissus to have an addition to the double flowers, unless these should comprise a great increase of quality as well. The Double Roman blooms very early; were it not for this it would not be worth cultivation.

The Border Narcissi form a division round which a good deal of interest clusters. Maximus or Trumpet major, and Trumpet Sulphur, are two large and showy single varieties, the first yellow in color. The Poet's Narcissus (N. poeticus) is so well known as not to need description, but everybody loves to see it in the spring. The common Daffodil (N. pseudo-Narcissus) is also a familiar spring flower; but not so widely known are two aristocratic-looking Daffodils, known as the Orange Phœnix and Sulphur Kroon, apparently improvements on the common double white border flower (N. alba plena). The former has an orange blotch in the centre of the flower; the latter a sulphur blotch. A few bulbs in a large pot would make a good display in the conservatory about the end of March.

The Jonquils (N. Jonquilla) also deserve a word of notice. The double and single varieties are well known for their exquisite fragrance, and they succeed well either in pots or borders. The large-flowered single Campernelle is scarcely so well known, perhaps, as some others, but as a border plant it is very effective. The Jonquils are yellow.

I have avoided making remarks on all the varieties that appear in the several divisions of this class of flowers, my object being more to record the results of my own observation than to attempt in any way to give complete lists of the many flowers now under notice. Quo. in *Gardener's Chronicle.*

About the Deodar Cedar.—In Section D. (Zoology and Botany,) Dr. Cleghorn, before a recent meeting of the British Association, read a paper on the Deodar Forests of the Western Himalaya, and exhibited a sketch map, traced from the Great Trigonometric Survey, showing, approximately, the position and extent of the Deodar tracts between the Jumna and Indus rivers, so far as ascertained. He dwelt upon the applicability of the wood of the Cedrus Deodara for railway purposes, for which it is found very valuable. A Government officer was, he said, now employed upon each of the great rivers of the Punjaub, for working the forest upon sound principles of conservancy. The quantity of Deodar timber brought down the Chenah alone, in one year, was 12,000 tons.

Allusion was made to an interesting and increasing trade in timber upon the Indus and Kabul rivers,—an important subject in its commercial and political bearing. The Deodar grows at an elevation of from 5000 to 12,000 feet, in a cold and changeable climate. The natives of the Himalaya invariably prefer the Deodar for building purposes; it is used in the construction of temples, forts, and bridges in damp and exposed situations, with alternate layers of stone; and some of these buildings have stood for centuries. The underground behavior of this wood in the permanent way has been so far satisfactory in the dry climate of the Punjaub. A series of photographs by Col. C. W. Hutchinson, R.E., illustrating the characteristic vegetation of the Deodar tracts and other Himalayan trees, was exhibited by Dr. Cleghorn, who pointed out the good qualities and uses of the various species. He also gave a number of their dimensions and the rate of growth as indicated by concentric circles of the logs floated down the different rivers.

Star of Bethlehem.—I shall not now have occasion to employ arguments or persuasions in favor of the flower to be named. The Star of Bethlehem is the *Ornithogalum*, which means bird's milk, and so I suppose we might venture to translate it dove's flower,—because doves are the only birds that feed their young with milk. The commonest kind is *O. umbellatum*, which will grow in any common garden border, and produce pretty, white flowers in May. This species grows abundantly in meadows and waste places in all parts of Europe, and especially in Italy, but is not often seen by botanists, owing to the flowers being green on the outside. It is also abundant in Palestine; and there is one fact in its history which may bear upon the unexplainable etymology of its generic name, and that is that the root of the plant is edible, and, according to Linnæus, was the food which the translators render "dove's dung,"—"the fourth part of a cab of dove's dung was sold for five pieces of silver," (2 Kings, vi., 25.) But, perhaps no one can say now what was meant. The Arabs call the plant kali,—"sparrow's dung;" and, in Germany, asafœtidæ is called *teufelsdrick*, or "devil's dung." It is worth observing that it was during the siege of Samaria by Ben-hadad of Syria, in the days of the wicked Jehoram, king of Israel, that the famine took place, and the Star of Bethlehem became precious as a foreshadowing of the greater Star of Bethlehem, who, in Samaria, should show forth His glory in teaching the doctrine of free salvation to the poor woman who came for water that wasteth away, and obtained a draught from the fountain of everlasting life. I say it is very strange that the plant which was so precious in the days of famine and spiritual darkness should bear the name it bears. But why should it have this name? I cannot tell, but I will not forget a poem by one of your great writers, who reminds me much of my countryman Uhland;—I refer to Kirke White, and his lovely song, "The

Star of Bethlehem."

When marshalled on the mighty plain,
The glittering hosts bestud the sky;
One star alone, of all the train,
Can fix the sinner's wandering eye.

Hark! hark! to God the chorus breaks
From every host from every gem;
But one alone the Saviour speaks,
It is the Star of Bethlehem.

Once on the raging seas I rode,
The storm was loud—the night was dark;
The ocean yawn'd, and rudely blowed
The wind that tossed my foundering bark.

Deep horror then my vitals froze,
Death-struck, I ceased the tide to stem;
When suddenly a star arose,
It was the Star of Bethlehem.

It was my guide, my light, my all,
It bade my dark forebodings cease;
And through the storm, and danger's thrall,
It led me to the port of peace.

Now safely moor'd—my perils o'er,
I'll sing, first in night's diadem,
For ever, and for evermore,
The Star! the Star of Bethlehem!

Another most pretty and much diffused species is *O. narbonense*, which is quite hardy in the northern parts of Europe, though chiefly in Italy and the south of France. The following are also well worth garden culture:—*O. arabicum*, white, 18 inches; *O. arabicum nigrum*, white and black; *O. lacteum*, purple and white, 1 foot; *O. longibracteatum*, white, 3 inches, a rare and lovely gem; *O. montanum*, another gem of diminutive stature; *O. pyramidale*, white flowers, 18 inches high; *O. revolutum*,—this has a fleshy root and white flowers 1 foot high; it is rare and exquisite. Amongst the tender kinds are *O. aureum*, with gold-yellow, and *O. thyrsoides*, with pure white flowers; both from South Africa, and need only the cold pit or greenhouse to keep them safe, though able to enjoy a warm house when pushing into flower.

There are many more, and they are all beautiful, but I must name only one more, and that is *O. alliaceum*, which is the "Onion plant," so much prized for windows, staircases, and other parts of the house where the true domestic flowers have the care of loving hands. *O. narbonense* has a place in the English Flora. All the species require sandy loam and leaf-mould for growth. It is necessary that the border is somewhat dry, especially if any of the tender ones are planted in it. I have named some that are hardy enough to bear more rigorous climes than Britain, but I shall add that the tender kinds could be grown in dry sandy borders if protected in winter as I have advised for the tender kinds of Irids.—*Gardeners' Weekly.*

The *Journal of Botany* for December, 1865, contains an interesting paper by Dr. G. Bennet, F.L.S., on the Tulip tree of New South Wales, which, as conveying information of value to plant cultivators, we have extracted in full:—

"The Waratah, or Native Tulip-tree of New South Wales, (Telopea speciosissima.)—The flower called by the aborigines 'Waratah,' and 'Native Tulip' by the colonists of New South Wales, is considered the most beautiful vegetable production indigenous to this colony, and is produced from a stiff, erect and rigid shrub, having the leaves of a hard woody texture, marking the *Proteads*, to which order the Waratah (*Telopea speciosissima*, R. Br.) belongs. The leaves are oblong, more or less unequally toothed, and from 4 to 6 or 8 inches in length; dark green, but when just expanding of a dark red color. The fruit is a pod containing many winged seeds. The Waratah is indigenous to, and grows luxuriantly and in abundance in the vicinity of Sydney, and other parts of New South Wales, and when first described by botanists was classed with a genus now known as *Grevillea*, named *Embothrium speciosissimum*, and figured under that name in Smith's 'New Holland Plants,' and in Curtis's 'Botanical Magazine' (edited by Dr. Sims.) It afterwards formed a new genus, called *Telopea*, derived from *telopas*, (seen at a distance,) from its bright crimson blossoms being discernible far off; and those who have had an opportunity of seeing this plant in flower, either wild or cultivated, will readily admit the correctness of this name. There are some peculiarities of its natural habits and reproduction worthy of notice. The first year the Waratah blossoms it throws out from two to four shoots from each flower-head; in the second year only two, and in subsequent years only one, or more rarely two. To ascertain the way these shoots are produced, it is necessary to procure a flower-head, full-blown or just fading, and on looking closely among the flowers, from one to two, or four young shoots will be observed just developing themselves; and these will form the branches of the following year, from each of which a flower-head will most likely be produced. A knowledge of this fact will explain why the plucking of the flowers destroys the new branches, injuring its natural development, and keeping the shrub stunted in growth, and prevents its flowering in the ensuing year. The Waratah produces seeds every second year. A tree growing in a garden at Hunter's Hill, in the vicinity of Sydney, five years old, and 10 feet high, produced, last year, as many as twenty fine heads of flowers at one time, forming a gorgeous sight; and in a tree growing in the Botanic Gardens at Sydney, I observed, this Spring, from one flowering branch produced last year, three stems that had grown, each

of which was now crowned by a magnificent full-blown flower-head.

When a Waratah-tree grows in a dense thicket of shrubs, or among creepers by the side of a wall, in the shade, it runs up to a great elevation, a tall, slender shrub, seeking the sun's rays, and to obtain light and air previous to developing its blossoms; in several instances, when so situated, they have been seen to attain the height of from 10 to 12, or even 15 feet, and then flowering for the first time. In suitable situations, in their wild state, they usually flower when about 4 to 6 feet high, and when at that time stripped of their blossoms, they become stunted, devoid of beauty, and so remain until suckers are thrown up from the roots, by which flowering branches are reproduced. I have also observed that the Rice-paper plant (*Tetrapanax papyriferum*, C. Koch,) only produces branches from the flowering stem; in order to prove it I removed this year all the panicles of flowers from a young tree flowering for the first time; the result was that the main stem increased in height and developed a new canopy of fine foliage, but no lateral branches were produced as obtained with those permitted to flower as usual. Those desirous of growing the Waratah in perfection, should not permit a flower to be gathered or otherwise destroyed. Many who are aware of the habit of this highly ornamented plant, have some magnificent specimens in their gardens, attracting attention by their rich and brilliant mass of bright crimson blossoms.

The Waratah thrives in a poor sandy soil, well exposed to light and air. The usual time of flowering is in September, (the early spring in New South Wales,) and it continues for nearly two months.—There are two kinds of flowers,—one the normal state, of a deep, rich crimson calyx-segments tipped with white. The blossoms when just expanding are of a delicate light pink, or rose color, gradually changing to a more or less deep crimson hue.

Horticultural Notices.

PENNA. FRUIT GROWERS' SOCIETY.

Mr. Shellenberger, the Secretary, informs us that the "third Wednesday (January 16th) in 1867," has been fixed on for the annual meeting of this Society,—to meet at Harrisburg as a central point.

These meetings have always been well attended, and are very popular. Last season the Legislature gave the Society the use of the Hall of the House of Representatives to hold their sessions in. The forthcoming meeting is looked forward to by most of the members with great interest, and one of the most useful sessions is anticipated.

OHIO POMOLOGICAL SOCIETY.

BY OUR OWN CORRESPONDENT.

The annual meeting of this Association was held at Zanesville, Ohio, on the 4th, 5th and 6th of December. A large proportion of members being present, with delegates from other kindred societies, the discussions were exceedingly interesting, and calculated to exert a beneficial influence upon the community. The display of Apples was probably one of the finest ever made at this season of the year, and consisted of over 400 plates of specimens, many of which being superior to any we have ever beheld. We noticed, particularly, superb plates of *Pennock*, *Newtown Pippin*, *Roxbury Russet*, *Rome Beauty*, *Peck's Pleasant*, *R. I. Greening*, *A. G. Russet*, *Northern Spy*, *Swaar*, *Yellow and White Bellefleur*, *Smith's Cider*, *Fallawater*, *Jonathan*, &c. The fine collections of the Messrs. Townsend, of Zanesville, were deserving of much praise. A plate of Rome Beauty, deposited by A. Ohmer, of Dayton, Ohio, elicited commendation for its great beauty.

Good specimens of Pears,—*Vicar*, *Columbia*, *Winter Nelis*, *Glout Morceau*, *Winter Bell*, &c., were shown, as were also Grapes, in excellent preservation, by Rev. J. Knox, of Pittsburg, Pa., consisting of *Concord*, *Delaware*, *H. Prolific*, *Elsinburg*, *Herbemont*, *Catawba* and *ToKalon*. The display of wines was quite creditable, and embraced a large variety of samples.

On the evening of the 4th the meeting was called to order by Dr. J. A. Warder, President. After the appointment of various Committees by the Chair the Rev. Mr. Springer, of Zanesville, read a welcoming address on behalf of the citizens of the place, and alluded to the great moral advantages of such a society as well as to the influence it would exert on the Fruit-growers of the State. The President responded in his usual happy manner, and then proceeded to deliver his annual address, which was replete with valuable suggestions and interesting data in connection with fruit culture in Ohio.

At the morning session on the 5th inst. the ad-interim Committee's report on Apples was read and discussed. The *Grimes' Golden Pippin* was considered very valuable by many members: fine-grained, handsome, medium size. A discussion arose as to the proper name,—which resulted in the title of *Grimes' Golden*. The Chair observed that the core was one of the most valuable distinguishing characters of an Apple;—also the color of the seeds.

Sweet Janet, a seedling of *Rawles' Janet*, was next introduced. A later bloomer than its parent, and consequently a certain bearer. Highly recommended. *Fort Miami*, according to one gentleman, was the best variety in the State. It was spoken of as a rather shy bearer, but very regular.

The *Spafford Russet* was alluded to as the best of all russets; a great bearer, and good keeper, although rather small in size.

Knox's Russet was called up for discussion. This is a pleasant flavored, rather sweet variety, and quite handsome,—the skin covered with a handsome mingling of red and russet. Great bearer. Mr. Knox was unable to trace its origin.

The *Federal* was introduced and noted for being always perfect.

Prolific Beauty, a large, showy variety that keeps well. Although prolific and profitable is of poor flavor. Considered by some as the parent of the Rome Beauty.

In the discussions on the older, well-known varieties, the *Baldwin* was not generally recommended, as it dropped from the tree before maturity. Along the Lake Shore it succeeded best. *Smith's Cider* did remarkably well wherever tested: very productive and profitable although not of the highest flavor.

Afternoon Session.—Upon a revision of the list of Pears, commendatory remarks were made on a number of old, well-known kinds, after which the subject of fire-blight on the Pear came up for discussion. Mr. Bennett, of Pittsburg, Pa., stated those varieties that were spreading in character, were invariably more subject to blight than the bushy-headed kinds. Mr. Batcham and others spoke of the blight being exceedingly bad the past season on the Apple. Not much information had been gained as to its character.

Evening Session.—An election for officers to serve the ensuing year being held, resulted in re-instating the following gentlemen:

For President. — Dr. J. A. Warder, Cincinnati.
" *Vice* " G. W. Campbell, Delaware.
" *Sec.* and *Treas.*-M. B. Bateham, Painesville.

After reading the ad-interim Committee's report on Small Fruits, a discussion on the best kinds of Strawberries for market (*i. e.* most profitable) was opened. *McAvoy's Superior* was objected to and stricken from the list. *Fillmore*, according to one gentleman, a remarkably robust, healthy plant; best but one on his place. Succeeds most satisfactorily on clay soils. *Longworth's Prolific* will do well on light soils; also stricken from the list. *Agriculturist* not fully tested. *Longworth's Extra Red* was very highly spoken of by some growers. A poor runner but producing good crops of fine, large fruit. *Triomphe de Gand* does well on heavy clay soils. Knox says it yields heavy crops of fruit with him. *Trollope's Victoria* was objected to. A number of synonyms are now prevalent. *Iowa* was recommended. *Burr's New Pine* was alluded to as being very delicious, but soft for marketing; also quite early;—the true kind not possibly known. For amateur cultivation the *Jucunda* was mentioned. One member stated that he considered it unsurpassed as a market berry, not even excepting the Wilson'sAlbany. Batcham, of Columbus, said it succeeds well, and only second to Albany. It was placed on the list for market.

Raspberries being the next subject for discussion the *Philadelphia* was called for. The Chair stated he had seen it at Parry's, in West Jersey, where it was very vigorous and enormously productive; hardiness perfect and sufficiently firm for carriage; probably not so delicate in flavor as Kirtland, but far more profitable berry for market than the latter. A member stated that, at Sandusky, the Philadelphia did better than Kirtland; slightly touched at the tips of the canes by the winter;—as to quality not equal to Kirtland. The latter, according to Campbell, was very desirable at Delaware, Ohio.

Ohio Everbearing was spoken of as being desirable. *Daily* was mentioned as promising well for a perpetual variety. A *Seedling* from the Ohio Everbearing had been somewhat disseminated but not thoroughly tested. It is larger and more productive than it parents. From Richmond, Ind.

Among the newer Blackberries Dr. Warder had seen the *Wilson's* and *Early Kittatinny*, both earlier than the New Rochelle, and the latter very delicious in flavor.

The Secretary then gave a very interesting description of a visit to the vineyards on the Lake Shore, participated in by a number of well-known Pomologists. The statistics show evidence on the part of planters in that section, to make the Grape crop one of our most profitable pursuits.

6th inst. Morning Session.—The ad-interim report on Grapes was read, and discussion opened on the newer varieties. One from Lansingburg, N. Y., called the *Saratoga*, resembles the *Catawba* in flavor, but more hardy. A new and promising black variety called *Lyman* was mentioned.

Two seedling Grapes from the Concord, raised by S. Miller, of Lebanon, Pa., were introduced, both earlier than their parent, named *Martha* and *Black Hawk*. The former, according to Knox, is a white variety, hardy, very abundant bearer, sweet and ex-

cellent; the latter not quite so large but much earlier. Mr. Husmann speaks highly of it. The *Iona* being called for, produced a lengthy discussion and a full interchange of opinion among the different growers. The result appeared to be that, where the Catawba succeeded the Iona would possibly prove valuable. Some vines had been winter-killed, others somewhat mildewed. One grower did not think it as early as the Delaware. Buttles considered it superior to any native kind in flavor, but as to hardiness not satisfactory. At Columbus, mildewed badly, as did also Delaware and many others. Miller, of Springfield, said Iona, Israella, Adirondac and Delaware suffered most by mildew; all somewhat winter-killed. Morrison, of St. Clairsville, was not favorable to the Iona. Two years planted in the vineyard were injured. Knox, of Penna., could not say anthing in favor of the Iona, and only spoke in answer to a request from the Chair. It was no better, in flavor, than Catawba, and mildewed somewhat with him. Bateham thought it might succeed on the Lake Shore. Campbell, of Delaware, doubted its hardiness. In favorable situations badly winter-killed; small vines mildewed this and last year. As to its earliness, it ripened 10 days later than Delaware, last year, and 2 weeks later this season. Had ripened after Concord and with Diana. Teas, of Richmond, Indiana, had failed with it. Mildewed and winter-killed with Imlay, of Zanesville. Other gentlemen who had some slight experience with it gave the same report. BUSHNELL, from Dr. Grant's gardens at Iona, stated that growers in their own section were grafting over their Concords with the Iona, and considered it as hardy and free from mildew as that variety, (Concord.) He considered it an early and productive bearer, and hoped it would prove profitable in the West.

Ives' Seedling was next discussed, and reported as being very reliable at Cincinnati, and made a wine equal to Catawba, and good for the dessert. Knox stated it was free from mildew, *thrip* never disturbed it, and thought it would prove to be the leading wine Grape of the country. All united in praising it highly, especially for its wine-making properties. Other kinds were then introduced and had proven valuable with varying success. Whilst some growers reported favorably of the Catawba others, again, denounced its reliability.

AFTERNOON SESSION.—Mr. Bennett read a communication on the subject of the rot in Grapes, and blight on the Pear, attributing these diseases to electricity, and suggested placing iron conductors in the vineyard and orchard; also to plant on light gravelly soils. After considerable discussion an interchange of opinion followed, on the various diseases of plants and the proper remedies for the same, especially the use of sulphates.

On the question of layering vines members were generally of the opinion that the system was not to be recommended. Bateham, of Painesville, then related the method of preparing Grape cuttings as practised by the vine-growers along the Lake Shore, &c.

The Committee on Wines reported several samples, but could only recommend one bottle as best, viz.:—Ives' Seedling, from J. M. McCullough, of Cincinnati. This was not only remarkably beautiful in color, but contained the elements of a valuable wine, with a delicious bouquet.

After passing numerous resolutions of thanks to their officers, citizens of the place, delegates from other societies, &c., the session closed, and the members separated for their homes, all apparently well-pleased with the result of their meeting.

FROM ANOTHER CORRESPONDENT.

The annual meeting of this Society was held at Zanesville, Dec. 4th–6th. The attendane was quite good, especially by the Nurserymen and Fruit-growers of that section of the State, which has long been famous for its fine Apples, of which great quantities were, in years past, shipped in flat boats down the Ohio river to Southern markets. The display of Apples, at this meeting, embraced 400 plates, and 150 distinct varieties. There were also some Pears, Grapes, and Native Wines on the tables.

Much discussion was had on Apples, their adaptation to different soils, &c. Also on Grapes, especially the *Iona*, the vines of which have not grown as well as was anticipated, in central and southern Ohio. Pears, Blackberries, Raspberries and Strawberries were also discussed. The blight in Fruit Trees and mildew on Grape-vines occupied all the spare time of the meeting without leading to any more definite results than usual.

The annual Report of Transactions of the Society will shortly be published and sent to the members; persons wishing their names to be enrolled as such have only to send the fee, $1, to the Secretary.

The next annual meeting of the Society is to be held at Sandusky. One or more summer meetings will probably be held under the management of the Committee *ad-interim*.

COMMITTEE.—Wm. Heaver, Cincinnatti; Austin Scott, Toledo; A. B. Buttles, Columbus; N. L. Wood, Smithfield.

THE
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THOMAS MEEHAN, Editor.
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Hints for February.



FLOWER-GARDEN AND PLEASURE-GROUND.

In many, particularly in small places, there are not near enough flowers planted to make the garden enjoyable. It is considered "too much trouble;" and hence the inquiry ever is for something that will "bloom all the time." But the misfortune is that these perpetual blooming plants seldom continue *freely* in flower more than a couple of months, and the flower beds are therefore flowerless in early spring, and indeed till near midsummer;—while, again, many things from some accidents die out early, and leave the beds bare before the end of the floral season. A little less fear of trouble would remedy the defect. An article, last month, showed how Gladioluses, Tuberoses, and other plants could be had in a succession that would make a bed really everblooming,—and a little thought will suggest other arrangements with other plants. Spring-blooming bulbs, such, for instance, as Snowdrops, Crocuses, Hyacinths, &c., could be arranged to flower early. Tigridias, Tulips, and Gladioluses come later, and between those low spreading plants that bloom profusely.

It is a fashion, now coming into popularity, to have masses of low flowering shrubs, on the lawn, which flower at a certain season, and then to plant in Spring, between them, other things that will run up beyond them, and flower when the shrubs are not in bloom.

We saw, last year, a mass of Mahonias which, in this region, bloom beautifully in May, between them were planted, thickly, Gladiolus Brenchleyensis, which made a very pretty show, pushing up through the green Mahonias after they were done flowering.

The Tritoma uvaria could also be introduced into such a place; or the Hollyhock, and very pretty results be obtained. But a little "trouble" has to be taken to do this. Between the plants of Mahonias a piece, a spade square and as much deep, must be taken out every year, and new soil filled in, or the roots of the Mahonias would make the earth too dry and too poor. In doing this a few roots of the Mahonias will be mutilated; but it seems to do them no injury; on the contrary, the addition of new soil seems to more than compensate for the loss of roots.

There are many other dwarf shrubs that would do well to form pretty effects of this kind, with, as for instance:—Deutzia gracilis, white, to bloom in June; Hypericum Kalmianum, to bloom in September; Spiræa Douglassi, pink, August; Yucca filamentosa, white, blooming in July; Callicarpa purpurea, violet berries, in October; Azaleas, yellow, pink and white, May and June, and others.

Shrubs, at any rate, are not near enough employed in decorating small places. By a judicious selection, a place may be had in a blooming state all the year; and they, besides, give it a greater interest, by their variety, than is obtained by the too frequent error of filling it up with but two or three forest trees of gigantic growth. Plant thickly at first, to give the place a finished appearance, and thin out as they grow older. Masses of shrubs have a fine effect on a small place. The centre of such masses should be filled with Evergreen shrubs, to prevent a too naked appearance in the winter season. Evergreen trees may be made into shrubs by having the leading shoots taken out several times in a season.

Pruning and training should, of course, be finished at once. In tying up vines and climbers to wire trellises, or, indeed, any kinds of trellises, on porticoes and piazzas, they should never be allowed to entwine themselves in and about the meshes. It is often necessary to take off the plant to paint, repair, or do something with the trellis or vine, and

it is well to keep it on the outside, to prevent injury under such circumstan es. Besides, some fine climbers, as Gelsemium nitidum, and many kinds of Roses, which require a slight protection in winter, may then be easily taken down, and be coiled into a circular form at the base of the plant, and covered with soil, which is one of the simplest and best modes of protection, and by which many of our hardier greenhouse climbers might be kept out in pretty severe winters.

Do not plant immediately after the frost leaves the soil; wait till it dries a little, when you can tread the soil firmly about the roots without risk of rendering it hard as it dries more. If circumstances make it necessary to plant in wet soil, do not press the soil much until it gets drier. It is important to have the soil well pressed about the roots, but it injures soil to press it when wet.

As soon as the frost leaves the ground, the lawn should be rolled with a heavy roller, while it is yet soft; this will make it have a smooth surface, take out many small inequalities, and press again into the soil the roots of the finer grasses which the frost may have drawn out. Where new lawns have to be made next spring, the seeds should be sown as early in March as possible, and the ground should be prepared for that now, if opportunity offers. For a good lawn the soil should be loosened at least twenty inches deep, and be well enriched with stable-manure, where practicable, in preference to any concentrated preparations. Guano, super-phosphates, &c., are well enough; but they do not give the soil that *fibre*, or lend it that *porosity* by which it retains moisture and air, so essential to perfect vegetation.

FRUIT GARDEN.

In those sections of the country which have passed winter's cold and spring winds, general planting will commence. It is best, however, not to be in a hurrry; cold winds are very hard on spring-planted trees. Whenever planting is done, always shorten in most of the last season's growth. It is through these much of the evaporation takes place that dries up and kills a tree before the new roots are formed. Let it be a rule *never to plant a tree without pruning it.* Some, who get most of their Horticultural knowledge in their closets, will object to this, as opposed to theories taught by professors. Never mind. Plant two trees near together: prune one severely, and leave the other unpruned. You will not afterwards feel it a disgrace to be dubbed "a practical gardener."

Never plant on a cold, windy day, and do not plant fruit trees on a poor, thin soil. *Subsoil*, *drain*, and *enrich*, cannot be kept too prominently before the planter. If the trees grow too luxuriantly to bear well after this, it is easily remedied. We can plant dwarf trees, or root prune, or practise summer pinching and training. The last can only be done, successfully, by experts. Where skill cannot be employed, dwarfing and root pruning will be extensively used.

VEGETABLE GARDEN.

In the Middle States the work for February will, for the most part, consist of preparations for future operations, and particularly for dealing with the manure question. All those kinds that are grown for their leaves or stems require an abundance of nitrogenous manures; and it is useless to attempt vegetable gardening without it. To this class belong Cabbage, Lettuce, Spinach, etc. The other class, which is grown principally for its seeds or pods, (as Beans, Peas, etc.,) do not require much manure of this character; in fact, they are injured by it. It causes too great a growth of stem and leaf, and the earliness—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone-dust, etc., are much better for them. For vegetables requiring rich stable manure, it is better that they have it well rotted and decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung: though, to the smell, no trace of "ammonia" remains in it.

In managing the vegetable garden the highest excellence should be aimed at. This is the chief source of pleasure in a garden. If one can take no pleasure in his garden,—if the watching of the beautiful processses of nature in furnishing him food,—and the many lessons they teach him, which he in a thousand ways can so pleasurably and profitably apply, have no charms or attractions for him, he had better give up gardening; for, assuredly, in most cases,—even to 99 in 100 instances,—the market gardener will bring the vegetables to his own door cheaper than he can grow them. Amateur gardening should primarily be pursued for the lessons it teaches, and the pleasure it affords; when it ceases to do this it should be abandoned.

One of the most interesting parts of a vegetable garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month, soon absorbs all the heat

the hot-bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees or mats; and the glass should always be covered with mats at night. Tomatoes, Egg-plants, Peppers and Cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for Cauliflower, Lettuce, Beets, Celery and Early York Cabbage, a little of which may be sown about the end of the month for the earliest crop. The Cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

In the open air, should the weather prove favorable, as it often is about the end of the month, Peas and Potatoes may be planted. Frost seldom gets deep enough in new dug ground to injure them after this date.

In the more southern States the gardener will lose no time in getting in his Potatoes, Beets, Carrots, Parsnips, Peas, Spinach, Radishes, Lettuce, Onions, and Salsafy. These should be the first crops put in after the season breaks up for good. The earlier they are in the better. Asparagus, Rhubarb and Horse Radish beds may now be made. Asparagus roots are generally planted too thickly to produce fine shoots,—they starve one another. A bed five feet wide should have three rows, and the plants set about eighteen inches apart. A deep soil is very important, as the succulent stems require every chance they can get for obtaining moisture. About four inches beneath the soil is sufficient to plant them. Rhubarb also requires a deep, rich and moist soil. Horse-radish beds are best made by taking pieces of strong roots, about one inch long, and making a hole about a foot or fifteen inches deep, with a dibble, and dropping the piece to the bottom of the hole; a clean, straight root will then rise up through the soil. Crowns or eyes are better than pieces of roots,—where they can be had,—and a rich, clayey soil better than a light, sandy one.

About the middle or end of the month, or still later in the North,—say the middle of March,—Celery and late Cabbage may be sown. Here, we usually sow the second week in March.

In the Northern States, Broccoli and Cauliflower when sown in March as recommended, do not head early enough in Fall. It should be sown about the time of Early York Cabbage, in the hot-bed, during this month.

GREENHOUSES.

This is the season when many things will require re-potting. Many have a set time and season to do this; but some things require re-potting at various seasons. The best time is just before they are about to make a new growth. Camellias, Azaleas, and many plants, for instance, start at this season. It is not necessary to re-pot so often as some think, especially if bloom, and not very large specimens, is chiefly wanted. If the pot is very full of roots, and the plant growing weak, it may need re-potting.

In potting, see that some provision is made for allowing the water readily to escape, by putting broken crocks over the hole. Use soil rather dry, and ram it firmly about the old ball. Prefer pots only a little larger, to very large shifts, as less liable to accidents. Trim the plants in a little, if unshapely, to encourage the new growth where wanted.

Many who have but small houses and wish to have a variety, are troubled with valued plants becoming too large. To keep them low, as soon as the plant has matured its growth, cut it d wn as low as may be desired. As soon as it shows signs of breaking forth into a new growth, turn it out of the pot; shake or tear away the old ball of roots and put it into as small a pot as it can be got into; and when it grows again, and fills the pot with roots, re-pot again as before.

Sometimes the plants get "sick," which is known by unhealthy, yellow leaves. This is usually by over-watering, generating a gas, or, as gardeners term it, a "sourness," destructive to the roots. The remedy is to cut the plant back a little, shake out the soil, and put the plant in a small pot with new soil, and place the plant in a house only moderately warm, and which is naturally moist,—so that the plant can live for a while without requiring much water. It will generally recover.

Every one interested in plant growing must be continually on the watch for small insects, which destroy more plants than many are aware of. The little Black Thrip is very troublesome to Azaleas; the green fly to all soft-wooded plants; the scale to Camellias, Oleanders, Cactuses, and the mealy bug to almost all hot-house plants. Continual syringings with warm, greasy water, in which sulphur has been mixed, is the best remedy. Tobacco smoke is still the most approved mode of destroying green fly and thrip.

Communications.

GOOD GERANIUMS AND HOW TO GROW THEM.—NO. 1.

(*Continued from page* 15.)

BY J. E. H.

I will enumerate a few, imported last year from England, and continue the list hereafter as others are developed from still later arrivals:—

PRINCESS OF WALES, ZONALE, *Dwarf.*

Pure white edge, with a prominent centre of bright cherry color. The eye is most distinct, not running into the white. The petals are large, of good subtance and symmetrically arranged as to produce perfect blooms. These come well up above the foliage or strong foot stalks, and retain their freshness and beauty longer than any Geranium I have ever bloomed under glass. The habit is excellent, well established plants not exceeding 14 inches in height. This is a very showy and attractive thing in the greenhouse, being a conspicuous contrast, even when surrounded by half a dozen Geraniums of different colors. It is now blooming with charming effect.

BRIDESMAID, ZONALE, *Dwarf.*

Salmon. Color very full at the centre, shading off lighter towards the edges with a kind of mottled or marbled effect that imparts great richness to the flower. In habit it is similar to the Princess of Wales; the blooms are large and showy, but, like all salmons, not quite so numerous as could be desired. It is, however, an acquisition in any collection however small.

MADAME RUDERSDORF, ZONALE.

Salmon. Delicate in hue, shading down to a pure white edge. It is entirely different from Bridesmaid in color, yet equally effective and beautiful. Habit not dissimilar to its rival; it is not designated as a dwarf, but, with me, keeps within very modest limits.

WHITE TOM THUMB, ZONALE, *Dwarf.*

Pure white. Those who are familiar with Madame Vaucher will be apt to think this one of her progeny. The flower is similar and nearly as large, but the habit is dwarf, and it is a decided acquisition for in-door decoration. Madame Vaucher as a larger sized kind, has not been surpassed by any of the newer whites. Well grown specimens I consider indispensable throughout all the winter months.

UNIQUE, (*Robinson's,*) HYBRID PELARGONIUMS.

Dark red, maroon centre. An old favorite in England, but does not appear to be disseminated here. It is an exceedingly distinct kind. The flowers are not large, but the color is unusually deep, producing a very rich effect. It blooms with me in February, and is much prized whilst in flower. I have not yet succeeded in growing this sort to my mind; its habit is somewhat awkward; it grows slowly, and may require more general treatment than we have bestowed.

It may not be amiss to state how these are grown to the best advantage. Unlike the Scarlets, most of these light colored, fancy Zonales grow moderately in pots. It will not do to stimulate the growth by the use of rich compost, or the result will be a heap of fragile stems and leaves, and a dearth of flowers.

To obtain fine blooming plants in November cuttings must be struck very early in the year. When rooted, transfer these to very small pots, using a mixture of old leaf mould, a little charcoal dust, and as much sand,—or better still, *old* lime mortar, friable from age.

When the pots are well filled with roots, transfer to a size no larger than sufficient for another start, enriching the soil with a little rotten stuff from an old hot-bed. Plunge the pots where they can have the early morning sun, but not after 10 o'clock. They must not, however, be set under trees, nor suffer for want of water. Just before the dog-days complete the last shift in the blooming pots, regulating the size of these according to the dimensions of the plants.

The best soil I find to be one-third each of very rotten and decayed hot-bed manure, (or cow dung is still better), rotten turfy sod, and well-seasoned leaf-mould, adding to this mixture a sprinkling of the aforesaid old mortar, pounded small, and a little charcoal dust. 3 or 4 small lumps of charcoal at the bottom are very useful. But I also use cocoa-fibre,—which the late Donald Beaton discovered to have the most beneficial effects upon Geraniums. A small quantity of this material mingled with the above compost leaves nothing to be desired in the growth of these and many other greenhouse plants.

Geraniums must not flag for want of water during July, August, and September, and they ought to be frequently syringed during drought. Before the 1st of October, remove into a frame, and use the sashes at night, only when frost is apprehended. Translate into the greenhouse towards the end of the month; previous to which a little top dressing is good, and a weak application of manure water useful in helping along the flower buds. Throughout the summer do not permit any blooms to expand. Some kinds are apt to throw up several shoots from

the main stem below the surface. These never flower well, and should be cut out, as they weaken the plant. When struck as cuttings, I have observed these shoots are more apt to sport than side branches.

[TO BE CONTINUED.]

GRAFTING THE GRAPE.

BY DR. J. STAYMAN, LEAVENWORTH, KANSAS.

According to promise, and at the request of some, we shall endeavor to give the readers of your valuable *Monthly* a concise system, a definite period and an expedient and successful method of grafting the Grape, adapted to any location, and not dependant upon some imaginary contingency.

Grafting the *Grape* is considered as an exception to the general rule, and cannot be successfully accomplished; for it is supposed there is some difficulty which cannot be overcome, or some mystery that cannot be unravelled. Even some have gone so far as to say that the conditions of success at one place would fail at another; making the whole a matter of location or some ethereal speculation.—Others have rode the hobby of the want of congeniality between the stock and graft, to soothe us in our misfortunes, and lull us into indifference, even should we succeed. No wonder we have lost so much interest in the subject because of the many speculation advanced, the numerous methods, and various reasons recommended, and the general failure attending grafting.

There may appear to be some plausibility in the theories, but in practice they are nearly evanescent.

We once gave up in despair of ever grafting a Grape from our own experience as well as from the testimony of others, and the more we investigated the subject the more vague, uncertain and difficult it became; for we could neither see or give any satisfactory reason why the few succeeded and the majority failed,—both equally skilled in talent and workmanship.

At last, the spell became broken,—the clouds disappeared,—and we realized the fact by experiments on numerous stocks and varieties that we had been taught a false philosophy and practice.

Why this subject should have remained wrapped in mystery so long appears remarkably strange when we take into consideration its certainty, ease and simplicity. We cannot dismiss this subject without expressing our gratitude and obligations to the *Gardener's Monthly* for valuable contributions, and to our friend *Samuel Miller*, of Avon, Pa., for his article and correspondence which led us to such definite and successful results. We hope this article may be instrumental in stimulating others to new energy and similar results; for we know from sad experience how to sympathize with those in their misfortunes.

With these lengthy preliminary remarks we shall now close, and endeavor to fulfil our promise:—

In the first place cut your scions in the *Fall* after the frost has killed the leaves and before very hard freezing, *well matured wood*, with as little pith as possible, (we generally prefer small, short-jointed wood); pack them in damp moss, earth or saw-dust, and keep them in a cellar, or away from frost during winter, and of easy access when needed. For convenience of packing away they may be cut in lengths of about a foot and tied in *small bundles*.

Prepare yourself with a short shoemaker's knife to split the stocks, a sharp pen-knife to cut and wedge the scions; a small iron wedge, about one-fourth of an inch wide, and strong enough to open the stocks; and for extra emergency, a strong-pointed pen-knife, to use, instead of the wedge, on small stocks, a wooden mallet to drive the knife and wedge if necessary, and a fine saw to cut off the vines.

The *exact time* to commence grafting is rather indefinite, but the most *expedient and successful period is definite*, namely,—from the time the frost leaves the ground in the spring until the vines commence to bleed, (February, March, or April, depending upon season and location).

To succeed well, they should be strong stocks at least two years old; and as early in the spring after the frost has left the ground and it has become settled, take the earth away from around the stocks about four inches deep; cut them off at a smooth place suitable for grafting about two or three inches below the original surface of the ground, (the earth mark on the stock will show exactly the depth which should be kept in view so as to know the length to cut the scion.)

They should be grafted as fast as cut off, and not exposed to the air or sun but a short time; but should they happen to be cut and not grafted they should be covered up with moist earth until ready to graft.

Cut the top of the stock smooth, and *take off the bark* at least as low down as the graft is inserted. Split, or rather cut it, by placing the knife on the side obliquely and strike the knife gently with the mallet until you split the stock deep and low enough to insert the graft. Be careful so as not to split it through on the opposite side. Then place the iron wedge or strong pen knife on the top, (as near the split side as you can, so as to allow room for the

graft,) press or drive it gently until you open the stock wide enough to insert the graft. Select a scion in proportion to the contraction of the stock that it may have sufficient firmness in the wood to withstand the pressure. Cut it long enough, so that when inserted in the stock the upper bud will be just above the ground, (we prefer one or two buds below the surface, but they are not indispensable; but in case of the upper bud being destroyed they would be necessary to save the graft). Wedge or slope the scion carefully so that the outside will be the thickest, (it is best not to cut to the pith); take the *bark off* the part inserted in the stock, see that it fits the the split correctly and matches the stock exactly on either side, then withdraw the wedge, and, if the work is properly done, the graft will be held firmly in its place *without tying*, (use no wax.) Then press damp earth, with care, firmly around the stock and graft, and let one bud be exposed.

If early in the spring and any danger of the ground freezing, they should be covered with earth or straw to keep the frost from lifting the grafts out; they ought to be left in that condition until all danger of freezing and thawing is over, and then uncovered. Watch and keep the suckers down; cultivate well, and protect the grafts by tying them up to stakes as fast as they grow.

We may have been tedious with our article but have found the details necessary to success. Whoever follows the directions herein given will be successful, and find the mystery to disappear, as much so as in grafting any other species. We have, in some instance, preferred cutting the roots off and grafting the scions of new and costly varieties, in preference to planting them, and have had over 100 feet of growth the first season from the graft.

Mr. J. W. Merrick, Jr., in August number of *Gardener's Monthly* says "he cannot *graft* a Grape-vine and never saw anybody who could," and asks if any reader can throw light on this obscure subject."

We hope this article will give him the ability to graft a Grape, and when he succeeds, the obscurity will disappear, and he will wonder at its simplicity.

The principal conditions of success are good material, grafting below the surface within the period mentioned, and the work well done.

FRUITS IN ALABAMA.

BY R. R. H., HARPERSVILLE, SHELBY CO., ALA.

I have for the last 8 years or more been engaged in testing fruits, especially Grapes, Pears, Apples, and Peaches, and thus pleasantly occupying my time; but must now try to do something in addition to pleasure from this my labor of love.

I have tested over 60 varieties of native Grapes, and all have failed save Scuppernong. I have had some fruit every year from Concord, and consider it the best after Scuppernong.

I had, this season, some 300 or more varieties of Pears to fruit, and among them many of the newer varieties were very fine.

My success with Dwarf Pears has been very gratifying. Of several hundred I find but few worthless, but could embrace the cream in 30 or 40 varieties of those not so well known, that have proved to be high flavored and first-rate this season. I will mention "Chancellor," "Haynes' Winter," "Rouselet St. Nicholas," Duchesse de Brabant d'Engheim, Beurre Millet, Beurre Delpierre, Beurre Antoinette, "President Raugot," "Gloire d'Burche," "Vermilion du Haut," Emilie d'Heyst, "Emilie Brevoort," "Theo. Van Mons," "St. Menin or Omar Pacha," "Poire Sacquet," Dr. Caperon, Duc du Comice, "Copsheaf."

Dr. Caperon, "Poire Sacquet," Glorie du Burche, Chancellor, Beurre Antoinette and "St. Menin," were very fine, and trees vigorous with persistent foliage. I have many new winter varieties that promise to keep well, of large size and handsome appearance. I have not referred to my notes and write from memory, and of course only refer to a few varieties. I have almost made Pear culture a specialty, —hope these few notes may not prove uninteresting. I desire to extend my specimen Pear orchard so as to include all the introductions since 1860, of value.

PRINCE'S STRAWBERRIES.

BY THOS. CAVANACH, BROOKLYN, N. Y.

I regret being compelled to ask a portion of your valuable paper to reply to Mr. Prince's ungentlemanly article. He states that none of his Seedlings are in the possession of any one in Brooklyn; this is incorrect; for I know of one grower who had, some years ago, one acre of Scarlet Magnate in cultivation. I received my plants from a celebrated Strawberry grower, formerly of Brooklyn, who is considered authority on Strawberries; he procured them direct from Mr. Prince.

Mr. Prince says he has not sold any plants of that variety he calls Welcome, until the present Autumn. He himself told me, in his own office, that he had sold five hundred to one man. It strikes me that he has a short memory when speaking to you or me.

I have exhibited the Welcome, Le Baron, Globose Scarlet, and some others, at the Agriculturist Office and the Farmers' Club. If Mr. Prince is

doubtful about our having the Welcome in our collection, we will prove it to his complete satisfaction by sending him whatever fruit they may produce the next season; as we prefer, for our own eating, something better than Prince's Seedlings named.

Mr. Prince says, further, that he refused to sell me plants; that, at any rate, is a truthful statement. I once made a selection from his catalogue, willing to pay him whatever he asked; but, although he had them in his catalogue for sale by the 100 or 1000, he had but half a dozen of some kinds in his garden; and he very naturally refused to sell them to me.

Mr. Knox has pronounced the Princess Royal to be the new variety now sent out as the Haquin.—Whatever may be thought of it in Paris, it is not worthy of cultivation here. He is mistaken about my recommending Georgia Mammoth. In an article published in the Times and Tribune, and some others of the New York papers, it was recommended merely for its lateness: in flavor it is no better than the Prince's Seedlings in question. Our Napoleon III. we received from a well known Boston firm, who imported it. It proved to be the Austin. If in error in this, therefore, the error is not mine. Mr. Prince complains that we recommend the Monitor; but it is a well known fact that Mr. Prince has placed all the leading, popular varieties upon his rejected list; his complaint, therefore, is a matter of not much account. The Monitor is one of the three prize Strawberries sent out by the Tribune to 50,000 people, and I am sure large numbers of them agree with me.

Mr. Prince says I am not allowed to enter his grounds: an assertion I am very much inclined to doubt; for, generally, all who have money to spend are welcome to Flushing, and particularly to Mr. Prince's.

In conclusion, I think my name, for truthfulness and reliability, stands fully as high as Mr. Prince's, and I am content to leave it here.

[There appears to be some personal feeling between these gentlemen with which the *Gardener's Monthly* has nothing to do, and which we fear has led both to rather severer statements than unprejudice would warrant. It seems clear that Mr. Prince is mistaken in supposing that Mr. Cavanach has not grown some, at least, of the Strawberries he wrote as having discarded. We are jealous of the correctness of the facts which appear in our journal, and Mr. Prince's denial was so absolute, in justice to ourselves we wished to have Mr. C.'s explanation. The matter must now rest here.—Ed.]

MILDEW ON ROSES, &c.--ITS CAUSES AND REMEDIES.

BY PETER HENDERSON.

I have grown Roses largely, in pots for nearly twenty years, but never until last year have we passed over a season without having had mildew, less or or more, on some varieties; more particularly towards the end of our selling season when the plants being scattered, together with the great press of work, prevented them from being sufficiently watered, this was the conducing cause to disease: the dying of the roots checked the sap, and mildew followed.

But, in my opinion, it makes but little difference from what cause the sap is checked, whether from drying of the roots, whether from cold drafts, or any other impediment to the circulation of the sap, the result is nearly the same on all varieties that are liable to the disease.

The same causes are undoubtedly attributable in producing the Verbena disease, "black rust," which appears to be only a species of mildew of what the doctors would call a malignant type. That this disease in the Verbena, when appearing in the greenhouse, is caused by improper treatment only, I think, there is now but little doubt. I have never yet seen it appear unless where the plants had been kept too hot and too dry, or occasionally, where they had been kept too cold, and been frozen, though there is much less danger from this last cause than the former ones.

In one of my greenhouses containing over 20,000 Verbenas, I observed a day or two ago, that only about a dozen of plants were tainted with disease, and these were those that happened to be placed alongside of the expansion tanks, where they were necessarily kept Hot and Dry.

The same causes act exactly in the same manner when the Verbena is growing outside in summer, I have never yet seen the disease attack the Verbena when growing on a rich soil no matter what it was composed of; but, I have seen it utterly destroyed both in sandy and stiff clayey soils, when these soils were poor or exhausted, and thus incapable of continuing the plant in vigorous growth during the hot and dry months of August and September.

So careful are we to keep clear of this disease in our stock plants that all are cut back about the first week in September, the plants dug around and heavily mulched with well rotted manure, and if dry, copiously watered; thus we keep the plants continually growing, and the disease, thus far, has never been seen either outside nor in, unless as before mentioned a dozen or two around the expansion tanks. My soil in Jersey City was a light sandy loam; that here in Bergen is a heavy loam, with a blue

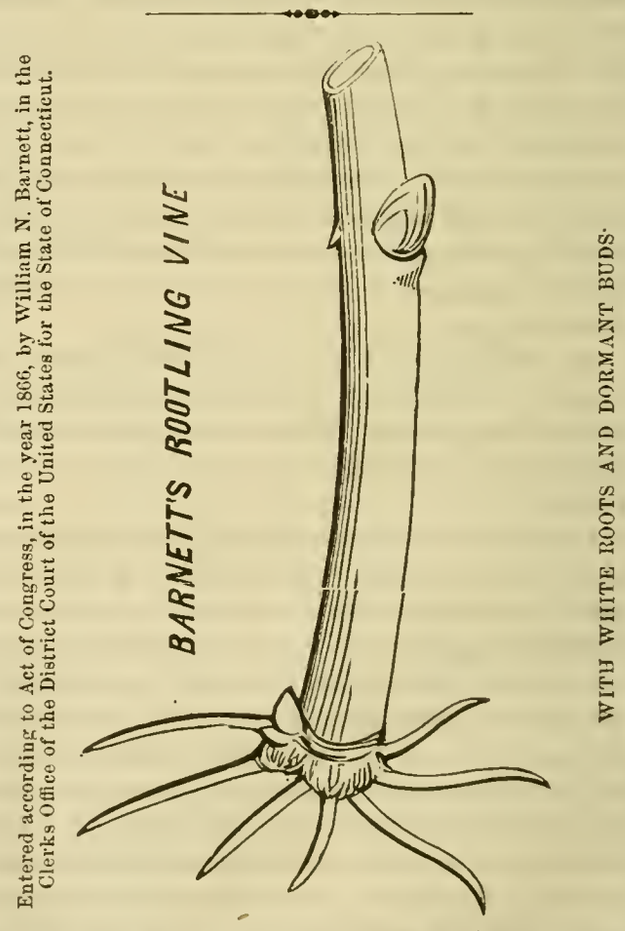
clay subsoil, yet we are just as free from disease on the Verbena here as there, proving satisfactorily enough that the variety of soil has got nothing to do with it, provided it is kept rich enough, so that the plant is not exhausted nor interrupted in its growth. I have long contended that we have few specifics against disease among plants, and that our test remedies were preventive ones; acting on this belief, and being satisfied that the interruption of the free circulation of the sap was the predisposing cause of mildew, I last spring for the first time plunged my pot roses, so as to keep a more uniform degree of moisture to the roots, the result of this experiment was so entirely satisfactory, that I will detail the plan pursued, trusting that it will be equally satisfactory to any who may try it:

The plunging material used was the refuse hops from the Breweries, which was turned two or three times before using, so as to exhaust the violent heat; the pots were then plunged in it up to the rim, giving a depth to the hops of 5 or 6 inches, this of course was not sufficient to give heat, that not being desired, but merely a medium to surround the pot, keeping it more regularly moist and of a more uniform temperature. In about two weeks after being thus plunged, the Roses began to start unusually strong and vigorous, and so continued throughout the whole season, until the development of their flower-buds, when they exceeded in health and beauty any thing we had ever seen. There were over 15.000 plants thus treated, embracing about 200 varieties, of all classes, but not a speck of mildew was visible, until the latter part of May, when a few of the refuse plants remaining unsold, slight indications, owing no doubt to the neglect in watering during the hurried season. I am certain that the Roses thus treated sold for 25 per cent higher than if they had not been plunged, but that was not the only gain, it gave us abundance of healthy shoots to propagate from, which rooted as freely as the Fuchsia, so that another result was a vigorous and healthy progeny.

I have long prized refuse hops as a valuable fertilizer for all kinds of Garden products, but was astonished to observe its wonderful effects on Roses; and I attribute their unusual vigor and escape from mildew entirely owing to its use. But whether its qualities as a preventive of mildew are positive or negative, I am not yet prepared to say, though I am inclined to belive the former; for we know that mildew dislikes an atmosphere charged with ammonia, and that Ammonia is the fertilizing principle in the refuse hops there is but little doubt; but be it as it is may, the practice is an excellent one which I will not soon discontinue, it not only lessens the labor of growing Roses in pots one half, but has the effect of producing a peculiar net-work of healthy roots, which well accounts for the unusual vigor of the plants. This net-work of roots around the sides of the pots much more resembling those of a Grape vine than a Rose, was undoubtedly caused by the absorption of ammonia, or other fertilizing quality, contained in the hops, *through the pores* of the pot.

Following up this idea, I placed in June a mulching of 4 inches of hops on the border of my trellis containing some twenty varieties of hardy Grapes. the experiment was again equally gratifying: scarcely a leaf was touched by mildew, and all presented a fine healthy appearance, though my soil and location are both uncongenial to the Grape. May not the mulching with this material, (when it can be had in quantity) in Vineyards be worthy a trial?

As a fertilizer refuse hops are considered by our most experienced market gardeners here to be, weight for weight, of about one-third more value than stable manure; they are slow to decompose and consequently are also of great value in keeping open and pulverizing stiff soils.



REMARKS ON THE LATTER PART OF MR. HENDERSON'S ARTICLE IN THE DECEMBER NUMBER.

BY W. N. BARNETT, WEST HAVEN, CONN.

Mr. Peter Henderson, of South Bergen, N. J.,

comes forward and, assuming to be the mouth-piece and champion of the "best talent" of the country, takes up, in the December No. of the *Gardener's Monthly*, page 366, a circular which I have distributed among scientific men and vine growers in this country and Europe.

He professes to take from it fifteen quotations, eleven of which fifteen are not to be found in it, and five of these eleven are entirely untrue. In addition to this, he makes out that I say (what I do not say or believe) that the "sole cause" of paralyzing vines is growing them in "glass pens," and that my process "will ensure universal health and vigor." He also tells the reader, this is simply putting cuttings "in sand, moss, or soil, in a close box or cellar," where they "emitted roots." But when I saw him at the Flushing Grape Sale, (Dec. 12,) he was not disposed (altho' he told me part of his business was propagating vines) to supply me with a single hundred, even when I offered him one thousand dollars for them, before witnesses ready to assure him of my responsibility! And further, he goes on and pronounces them "all but worthless" to set out. In answer, I exhibited to him a plant, after growing one season, which was taken from a block where thousands like it are growing, set out "at once in the open ground," from where I started them; and this same plant has been forwarded to the Editor of this Journal. It was pronounced in Flushing, to be A. No. 1. The editor can speak for himself. Now all this goes to show, conclusively, that he knows nothing of my process, or the value of my vines,—and that his article, so far as I and my circular are concerned, is most wholly a tissue of misrepresentation.

In lugging Mr. Perry (with whom I have nothing to do, and who, no doubt, is capable of taking care of himself,) into the same article, he makes me to knock him "all to smithereens." As I have no Billingsgate Dictionary, I am at a loss to conceive what the fate of Mr. Perry will be. "Pat" must be sent among the Bowery boys to write up my vocabulary.

A volley of personal epithets I shall pass by as beneath notice. The *woody* fibre of the Nutmeg State appears to grate but little from the rasping given it by the *herbaceous* Jerseyman. From a good look at him, "the old gentleman" confesses to the weakness that he was "*surprised* and pleased" somewhat at the idea that, possibly, Mr. H., too, might soon be just fifty, so that then, like ourselves in our dotage and delusion, he might appreciate from experience, such pleasant compliment from a stranger, (if he gets them,) as "great man," "mighty discoverer," "old gentleman," and the like.

He says "my early experiences were probably confined to the lapboard or lapstone." Study, Books, and Horticulture comprise, thus far, all the occupations of my life, though the business community have long known me as a landlord.

He brands me "ignorant" and "presumptuous." Now, if he will show me, from the "days of Adam" to Henderson, inclusive, the record of any drawing, or the description of any vine, and the process of growing it, like the one in my circular, (the engraving of which heads these remarks,) either in Greek, Latin or English, French, German or Spanish,—the familiar literature of my library,—then he may have some grounds for his charge; but till that has been done, I feel justified in asserting that my vine and the process of growing it are novelties,—so simple, so useful, that, when generally known, hardy Grape-vines may be raised as easily as Strawberry plants.

Not two hundred of my circulars have yet gone out into the world; but intelligent growers have responded, orders have rolled in, and my desk is now loaded with the highest testimonials and munificent sums have been offered if I disclose, in advance, my process; while strangers from all sections have wended their way here, not to see a suburban village in a "one-horse town," but the vines that grow in it, and the one who grows them and knows how to fruit them;—grows them from frost to frost, in the open air and "open ground," not wrong end first, but the *root before* the plume,—like a seed of corn,—as the Creator intended; exposing their enemies, the insects and "glass pens," the thrip, and the mercenary steam propagator, who prostitutes his calling by spawning his sickly abortives upon the land.

I have traced Mr. H. ever since he has been before the public. I have seen him write and heard him lecture. I have watched him 'under glass' and in the garden, and I would have supposed that "for the honor of trade" his success, *till now*, had elevated him above stooping so low as to soil his pen by writing, as is the article in question, the most scurrilous attack that ever met my eye in a horticultural journal; one which eminently fits him for other hands than mine.

Is it possible that my print, when it met him, bewildered his brain? Does this *youthful* champion see, in my picture, the hand-writing upon the wall,—that *Crystals of South Bergen are beginning to "crumble"*? If so, let me comfort him with this consolation, that as he already stands obligated, in part, to the invention and "discovery" of Whitney and Goodyear,—once townsmen of mine in the land he has ridiculed,—for the shirt to his back and the

shoe to his foot: so also, to me and my vine,—ere his head yet gets hoary,—may he still more be indebted for the clusters and the wine to gladden his heart!

If I have not canonized "Peter" the gardener,—who, "for the honor of trade," not the good of his country, would have me turn cobbler,—he should bear in mind that, unlike St. Peter of old, he is not yet a martyr! My wood-"cut" may cut him, but he is still a survivor; and, though his name be not clustered with "Liebig and Lindley, Loudon, and De Breuil, Mead, Meehan and Ellis," he may still find a niche in the temple of Fame (as famous for error, for "ignorance" and blunder) that may hold on the record long after his "glass pens" have passed into oblivion.

A stranger on visting the Capitol, once thought that the members the most noisy were certainly drafted;—so in viti-culture too; the member that cries so loud "for the honor of trade" may not be unlike those brothers in Congress. The retired and the silent will sometimes say something, and the something they say is often hard to forget. My Circular,—an "interesting document," (says the Editor,) of "nonsense," (says H.)—the reader to be his own judge, should have one. This it is that has told a "wonderful" tale, all its own; and, if with it, *at the first dawn of Spring,* I scatter broadcast, from ocean to ocean, a fine, hardy vine, at the cost of a penny,—"To the Public" I speak, am I what my traducer would have his readers believe?

The unscrupulous *personal* attack of Mr. H. forms my apology to the reader.

[It is our rule to admit nothing into our columns that will not, in some way, instruct or interest the reader. We do not see that this paper can do either one or the other. Mr. B. says when his secret is known, vines may be raised as easily as Strawberry plants, but as he gives no information as to what that "secret" is, we do not see of what benefit the assertion is to our readers.

We decide to publish the paper only that we now see we erred in passing over a few expressions in Mr. Henderson's paper, which turn out to be not strictly correct, and, not being so, may be considered not strictly courteous. The reference to the "lap-board or the lap-stone" we should have struck out had we given it more serious thought. We are always willing to pay the penalty of error,—we suppose Mr. Henderson is,—therefore, we permit ourselves to be punished by publishing an article which, if Mr. H.'s was "scurrilous," imitates it far too well for our taste.

So much for strict justice,—now for the facts.—The idea, that Mr. Barnett has discovered any new principle in the circumstance of getting roots out while the buds are still dormant, is ridiculous and absurd. It is the aim and object, and the successful result of all propagators from ripe wood, every one of whom knows well that his success in striking is just in proportion to his success in getting roots before the eyes start. Every thing struck from cuttings in the open air, which grows best, roots before its buds burst. It is this which makes it possible to root some things, by planting in Fall, which will not root well in Spring. If, for instance, a Quince cutting be put in in October, by the end of March it will be found with roots a quarter of an inch long, and the buds quite dormant,—not, in fact, sprouting before April. But in the case of a Quince cutting put in in March, there is not time to push out roots before the buds burst, and exhaustion and death ensues. This is, in fact, the whole secret of bottom-heat in propagating, — to keep the bed several degrees warmer than the air, that roots may push before the buds burst, so as to be ready to supply the evaporation the young leaves facilitate.

Many persons claim the right to patent things which everybody knows, simply because a description has not been published before; but even on this point Mr. Barnett is at fault; for if he will turn to our 2d volume, page 206–242, and all through that volume he will find that Mr. John Watson and others are several years ahead of him in knowing how to get roots from cuttings with dormant eyes. There are improvements which could less ridiculously be patented than this. We do not remember any one having patented or even described a three-tined fork, which is certainly an improvement on the old double-toothed one. If our discoverers wish to operate in patents, let them try their skill in such things, and we will have nothing to say; but we heartily unite with Mr. Henderson in having no patience with this course in Horticulture.

Yet we differ with Mr. Henderson on one or two points. Mr. Barnett *can* produce good vines by this process—of course he can. The specimens he sends, of Concord, cannot be excelled. They do credit to his skill as a grower if not to his merit as a discoverer.

Neither do we agree that horticulturists should have no secrets, nor feel it unprofessional to patent any really new discovery from which they may derive profit. We honor that free and liberal horticulturist who gives to our readers generously of what he knows, and think he benefits himself, in most cases, much more by this free diffusion of thought than withdrawing into his own shell;—but yet it is his right to decide for himself,—to keep his dis-

coveries to himself or not as he may think proper. —Ed.]

WASPS AND HORNETS.

BY A FENDLER.

In an article entitled "Insects in the Orchard," in the December number of the *Gardener's Monthly*, page 364, the experience of cultivators is wanted with regard to the topics it contains.

As to wasps and hornets, I had some experience last summer, and can most cheerfully testify to their great usefulness and industry in destroying caterpillars. They have been long known to me, but I must say, very superficially. What I had hitherto considered as neutrals, if not as enemies, proved to be most diligent and faithful assistants in picking off the caterpillars from my tobacco field.

One of the most tedious kinds of work in raising a crop of tobacco is the turning over of every leaf in search of the caterpillar, known by the name of hornworm, or tobacco-worm, so very destructive to that crop. These worms can be found of all sizes, from that of a sewing-needle's point to that of a man's finger. From about the 10th. of June to the end of the tobacco season, say, the middle of September, they are at work in devouring the leaves of the tobacco plants. Last summer, although these caterpillars were hatched in unusually large numbers and to an alarming extent, yet, rapidly as their growth is, they never reach a size of more than an inch in length. The cause of this singular phenomenon, I soon found to be a number of hornets, and orange colored wasps dispersed over the field, and busy from morning till night during the months of July and August in searching for tobacco worms on the lower side of the leaves. Whenever they found one they took hold of him with their mandibles, worked him up into a small ball and then carried him off. In this way the wasps check the development of the caterpillar.

Later in the season, in September, when the nights turn cool, the wasps are busy only during the the warmer part of the day, hence many of the caterpillars have a chance of growing to full size, even if the tobacco is being wormed by hand. When they have reached the length of somewhat over an inch they become too heavy for the wasp, and are rejected

Whether the latter render their services to man from motives of self-interest or otherwise is quite immaterial to me; these little creatures, by their efficient and voluntary aid, imposed upon me a duty of gratitude which will not allow me to pry into their motives. They will always find in me a friend ready to protect them, no matter whether theymeant to benefit me or themselves. Most likely they had the preservation of their own offspring in view, and thus work even for the horticulturist's future benefit.

Some years the wasps seem to be less numerous than in other years. In this part of the country one acre of tobacco, in order to be properly wormed, requires most of *one* person's time and attention throughout the growing season, if he has no assistance. Last summer, assisted by wasps, the acre of tobacco I planted, did not require more than three wormings, leaving me plenty of time for other work.

An article on the habits and natural history of this particular tribe of insects by one of our entomologists could not fail to be of much interest to the horticulturist.

PUZZLES IN GRAPE CULTURE.

BY J. S., GENESEO, ILL.

I like the grape talk in a recent *Monthly*. I like Fuller, his book, and all he says about grapes better than any one else. Two objections he and others talk about, whether four inches is deep enough to to plant grapes, *i.e.* the top roots covered four inches or more; I know no reason why any part of the stem should be in the ground, more than the roots should be above the ground.

Pinching-in or shortening laterals: I have tried it some, but dont think "it pays;" I cannot see any good reason for it.

Summer pruning induces fruitfulness and loss of vigor and health in the vine. It is common now for vines to produce fine fruit while young; as they grow older rot and mildew appears.

Some trees and vines are from the first more hardy and vigorous than others, and are not so soon weakened or injured by summer pinching.

I get Pears and Apples, &c., sooner by summer pruning; but though slowly, it injures the trees more or less, and the effect is also transmitted by grafts. I will continue the practice with Pears, &c. But grapes bear enough, without summer pruning, and they have done so for me every season this forty years. A few vines that I tried pinching on for some 5 or 6 years showed speck and rot, mildew, &c.

I have a Clinton vine now eleven years old in my door-yard, so tramped that no grape grows in twenty feet of it it; goes up 8 or 9 feet then spreads so that it bears fruit forty-five feet apart, and full all over; no two of my vines in cultivated ground bears as much, and its berries and bunches are larger than common, ripe and sound, every year.

I had a Catawba in Ohio in a similar situation, only

in very stiff clay; it to surpassed any Catawba I have had either here or there, in all desirable good qualities.

From the first there was nothing but very hard ground near them. I never pruned either in summer. Now these vines and the conditions of their roots, were noticed and critically examined by many folks who year after year saw the great crops they bore. But as far as I know neither they nor I adopt the plan, but cultivate, loosen and stir, but never attain near as good results; but some of us have quit summer pruning of vines, and obviously gain by it.

But for many years I have been thinking and reading about grapes, but see no prospect of coming to any settled conclusion that will stay settled; and from reading I learn that many wiser folks are in the same fix.

It should be obvious enough that I don't write for publication, and what then? Well some of these winter days, I have no company but my good wife and she don't see any mystery in gardening, and won't contradict me when I talk, but we know these two things an editor must be ready for:

First, he must know every thing we want to learn. Second, we must receive with gratitude, and make good use of all the surplus wisdom, that so weighs down some of our heads, even if he did know it all, and more clearly too before he heard from us.

[We like very much to have our correspondent's facts and admire his philosophy, even to his synopsis of Editorial accomplishments. The Editor is not a "gentleman of finished education," but a simple searcher after truth, who sees enigmas every where about him; and who, while teaching others all he can learn himself, asks as a favor of others to let him know in turn, what they observe. If we had a few score more correspondents like J. S., we should be very thankful.—Ed.]

GRAPES FOR THE MILLION.

BY JAS. LAMONT, GARDENER TO C. ZUG, ESQ.

In the *Gardener's Monthly*, August number, I read an article from Mr. Thompson, gardener to Wm. Resor, Esq., Clifton, near Cincinnati, Ohio, in which he thinks the way we grow grapes under glass at Mr. Zug's is not the way for the million to follow. I would say in the first place that if a grape house is to be built where nature has not supplied the place with water, artificial means have to be used, and that can be done either by hydraulic or steam power. Mr. Zug tried the former but found that he could not be supplied from his ponds to keep his fountain, hydrants and all as he wished them to be kept, with a good supply of water at all times, so, then in the second place, he had to penetrate the earth for his supply, and striking a good vein, we always have a good supply of water in the well, and if we pump it all out to day, it is up as high to morrow, and thus we can keep the fountains, and hydrants, all going on, and still the supply is good and as perfect any water works in the United States.

In the third place, if Mr. Zug had to keep men to pump the water into the reservoir it would take ten men a whole day to fill it full; and that would have to be twice a week, it will be seen by the time $2 per day paid to each man, it would take $40 per week. I think that would be very expensive; but instead of the men we have an engine, and all we have to do is to raise the steam, and in five hours we have the water pumped, and if it had to be done by manual strength, $20 would be spent.

There has been so much writen on the culture of the foreign grape under glass in this country, that I believe I can hardly get an essay in sideways; but I will go in that way, even though I have to come out backwards to get into the *Monthly*, and as I like not that style of traveling, you will feel complimented.

We, I think, have only two ways of pruning the vine, the rod and the spur (some may say the renewal system, is another, but I think not, it is but the rod and spur systems combined in one.)

Pruning is one of the greatest points in grape growing. When that is done well all will go right, and if badly done, all will be trouble,—you will either have too much wood or too little, as the case may be.

Summer pruning is often in my opinion too much indulged in, in this country. We must not think that we are in any part of Europe; but in America, where we have more sunshine. Therefore we must have more leaves as "suckers," and also for shade. If it were not for confusion in a grape house I think no pruning in summer would be a benefit; but in all cases once stopping is enough; after that let the laterals hang down in the air, and as soon as they hang enough to form a curve in themselves the great growth is over.

But here is the greatest point; you must deprive them of their tendrils, for if they get a hold of any thing, I can assure you they will grow and cling very fondly even to themselves; I have often thought by the way, tendrils to a grapevine were like dollars to a young man; give each one plenty, and they will travel a long way from home; but on the on the other hand, take it all away from them, and

I will assure you that they both will stay nearer home.

I believe in Mr. Thompson's way of destroying red spiders. Sulphur will do it if it is properly used: mix it in water, and syringe the foliage all over, once and well done, and they will disappear; for mildew I would recommend a free circulation of air; it will soon destroy all mildew that may appear in any grape house; but in a good circulation you will never have to destroy mildew, for it will never appear there.

In the *Gardener's Monthly*, in the November number, for '66, there is an article by C. N., Newark, N. J. of a Richard Miller, gardener for Wm. Faitaut, having grown superior grapes under glass for five years and without sulphur. There is nothing wonderful in that. I like to hear of large clusters of grapes, such as are mentioned. Did both of these bunches grow on the one vine? if so, and 20lb. more, then I would say, that that is good grape growing. In my opinion there are very few practical gardeners who do not recommend front ventilation for grape-house; without such your vines will not be healthy. In spring you must give front air every day until your vines break their buds; for without it they will break too quick, and your young shoots will be ahead of your roots, and when this takes place it is a very bad check to the whole vine, for the want of motion in the roots as well as in the branches, both must be brought into motion together, and if they are not together it is a bad start.

I think Mr. Miller may have many advantages over Mr. Thompson in the way of keeping down insects; he I think has artificial heat in his houses, and if so they will be clearer from insects than a house without artificial heat. It is more than likely that Mr. Thompson's houses are cold and in them you will be troubled all the time with either mildew or spiders, and when you are trying to destroy the one you will be encouraging the other.

Mr. Thompson speaks of the way we cover grape-houses here. It is good, and I think it will be used, universally used, in span-roofed houses before long.

PLANTING POTATOES IN THE FALL, PITTING, &c.

BY "A SUBSCRIBER," BALTIMORE, MD.

I notice, in the October No. of the *Monthly*, an enquiry from Illinois relative to planting Potatoes in the Fall. I have no practical experience on the subject, and write altogether speculatively, were I to experiment. After thoroughly preparing the land, I would run out deep, bout furrows, north and south. Plant the Potatoes about the last of August, which will afford time and heat sufficient to start the shoots and partially decay the tubers.

After planting, spread over the tubers four inches of rough but well-decomposed manure, and on the manure, eight inches of unbroken rye straw, (tangled straw will do as well but it is more difficult to cover,) and finish covering by running an angular harrow turned upside down, "broad end on," which will draw to the centre of the furrows a light covering of earth. Early in November, or before the ground freezes, throw up, on either side of the Potatoes, (by a heavy, wide-breasted plow,) a ridge; then with a one-horse plow lap those furrows, thus covering the Potatoes, by the three applications, about twenty inches, and on either side fifteen. The frost may penetrate through the earth but will be arrested by the straw. The ridges should be convex or roof-shaped.

In the spring (early in March) uncover down to the straw. When the vines are fairly up subsoil on either side, running the shear next the Potatoes which will allow a free circulation of air and heat afterwards, cultivate as science and practice dictate.

In the autumn of '65 I left a row of Potatoes (planted in April) ungathered: early in November I threw off the earth nearly down to the Potatoes with a double mould board-plow, and covered with straw and earthed up as previously described. As soon as the frost was out of the ground on the following spring I dug up a daily supply which lasted nearly till my extra early crop was sufficiently ripe for use. Nearly every Potato was sound and as fresh as the succeeding early crop. Granting this experiment to be a fact, it follows that we can have at command this almost indispensable vegetable every month in the year.

As regards Spring-forcing see Horticultural books, and the Monthlies on the subject.

Without seriously deviating from the subject I will add that covering a summer crop of Potatoes with straw, or mulching, will add greatly to the product. The mulch retains moisture, prevents excessive heat, and holds the rich gases arising from the atmospheric air. In our Southern States mulching, as regards the Potato crop, is indispensable to success.

Again, to keep Potatoes fresh and sound for spring and summer use, select from the Potato pits, when uncovered in the spring, those that are sound and unsprouted; form, for example, conical pits 6 in. deep, and 9 feet in circumference: in these, throw the Potatoes carefully; on each layer of Potatoes

sift a heavy coat of dry sand or light loam,—cover with six inches of straw, 12 inches of earth, and, when settled, sod the surface, and form drains 12 inches deep around the pits, with an opening for the water to pass off. The same object may be accomplished by packing the Potatoes in dry sand, and stowing them in a dry, cool cellar.

By excluding air, heat, frost and dampness, I believe Potatoes may be kept in their fresh, original state, either during the summer or winter months, or for an indefinite time. My theory is, if we exclude the elements from the Potatoes dormancy results.

For convenience of transportation during spring and summer, pack in tight barrels with cut straw, saw dust, bran, &c.

Were I a northern or Canadian farmer I would not hesitate (if necessity required it) to cover potatoes under a snow drift. Let one of your sharp yankee boys tie up in a coarse bag a half peck of sound dry potatoes (globular form), then when the snow is in a fit state let him roll it over the snow (as boys are wont to do) till it becomes too large for his strength, then let him place the ball under a northern aspect on the approach of spring cover the ball with straw and over it a triangular chicken-coop, the closed side facing the south, or cover with pine boughs or brush to keep the straw in place and to exclude the elements. I will wager high that the said boy will have the pride to present his mamma with half peck sound potato for her 4th. of July dinner. If boys south of the State of Maine wish to try the experiment I advise them to "break cargo" on next Easter sunday.

My object is to induce my brother farmers to think more; experiment, and with practice unite science. It will be noticed that all I have said is speculative.

PREPARING GRAPE CUTTINGS.

BY M. B. BATEHAM.

The No-patent method of Making Rootlings.

Among the letters read at the recent meetings of Ohio Pomological Society at Zanesville, was the following from William Patrick, of Indiana, a very successful propagator of grape vines from short cuttings without the aid of glass or artificial heat; with a little variation, the same method has been practised for ten years or more by some of the nurserymen at Rochester N. Y., and at Columbus O., and perhaps by many others.

"Dr. J. A. Warder: *Sir.*—My plan of growing vines from cuttings is this: I make my cuttings in December, cut them from 4 to 6 inches long with 1, 2, or 3 buds each, according to the length of the joints or the scarcity of the variety; tie them in bundles of about 50 cuttings each, for convenience of handling; then dip the lower half in a thin puddle of clay and sand mixed.

Prepare a cold frame in a dry and sheltered place, a foot or so lower than the surface earth, and in this stand the bundles of cuttings, *the bottom ends upwards*; fill the interstices with fine soil, if clear sand all the better; cover with earth or sand 4 or 5 inches deep, and leave till there is danger of frost reaching the cuttings, then cover with litter or mulch to keep out the frost, and board or sash to keep off the wet, till warm weather in March, then remove the covering and let the sun shine on the surface soil this is my "bottom heat."

If sash are used the process will be more speedy, and the cuttings will need transplanting quite early, which cannot always be done where there is no sandy soil.

By this process the young roots start before the buds open; I have planted them successfully with rootlets 3 inches long; and can strike all varieties by this process."

SOWING OATS IN FEBRUARY.

BY RIALCNIS, MARYLAND.

Knowing your admirably conducted Journal is patronized by farmers as well as gardeners, I will give you the following on the subject of Oats.

By reference to books on the subject of Agriculture, and the Monthlies, I have yet to learn that Oats have been sown in February; neither have I heard the practice verbally suggested. Believing the object could be profitably accomplished I prepared, in the Autumn of '65, a small strip of tolerably rich clay loam, having an easterly exposure; and on the last snow in February I sowed it down in Oats. At the same time the land was top-dressed at the rate of twenty 2-horse cart loads of barn-yard compost per acre. If there is a sufficiency of vegetable or animal matter on the land, and manure made on the farm is not sufficient for the crops, guano and other fertilizers may be resorted to, and with a saving of 100 or 200 per cent. over and above the cost of carting manure from the city.

For the process of covering the seed I relied on the honey-comb state of the land aided by the melting snow and spring rains. As I anticipated, the seed germs started vigorously and promised success. When the plants were sufficiently grown, and the land dry, I passed a common drag-harrow over it followed by the roller.

I plowed, manured and managed three acres

under similar circumstances, and sowed the Oats about the 10th day of the following April. Now to the result. The Oats sown in February produced a heavier crop, greater weight of grain and straw, and was ready for the scythe *upwards of two weeks earlier* than the April crop; thus affording not only an increased yield, but an opportunity of getting the crop in market early and obtaining the highest price. Clover and other grass seeds may be sown in February at the same time of seeding the Oats.

In preparing land for Oats or any other Spring crop it should be plowed in the Autumn; for reasons that every observing farmer understands. I am strongly in favor of the propriety of surface-manuring. To gain the utmost by the practice the manure should be spread after plowing, and thoroughly incorporated by repeated cross-harrowings. With those who are opposed to the practice and prefer to plow the manure under in the Autumn. I will compromise by proposing that the land be cross-plowed and subsoiled the following spring; after which, "harrow the land 'till it is harrowed enough, then harrow once more."

The subsoil plow should be run sufficiently deep to elevate the manure applied in the Autumn. If the substratum is rich, and the upper stratum impoverished, the subsoil plow may be run as deep as possible. Again, on the contrary, if merely pulverizing the substratum is the object, it will be necessary to remove the elevated slide. By the free use of the subsoil plow and cultivator, drought (under ordinary circumstances) need not be feared.

As ground plowed in the Autumn is seldom or ever harrowed, the Oats may be sown without that preparation, and with fair success.

EVERGREEN TREES, SHRUBBERY, &c.

BY WALTER ELDER.

Wherever we travel in winter, we are delighted at the sight of evergreen trees, shrubbery and hedges; they are a magificent gift of an all gracious providence to furnish us with beauty and shelter during the coldest and dullest season of the year; and where many of the various species are growing upon the same grounds, additional beauty is imparted to the scene, by their diversified shades of verdure and various sizes and forms; the green lawn may be deeply buried in the snow, and the flowery drift may be lodged in the emerald boughs of the trees, and even then, they have a rich and dignified look, and much more so after the snows disappear and the plants resume their original forms. Hedges are the frame work of the picture; and their glossy, verdant foliage is the best gild and varnish to give grace to the various species within; there they stand, harmoniously combining to beautify the grounds; although some of them are originally each others antipodes: how dark would the *Yews* and *Tree-box* look alone; and how faint and pale would Cedrus deodara and the Irish Juniper appear by themselves, but when arranged among the *Pines*, *Piceas*, *Firs*, *Arborvitæs*, *Biotas*, &c. what a diversified show they make, and the many choice varities with variegated foliage among them; make a most beautiful winter garden.

Nature has made evergreen trees and shrubbery, to spring up spontaneously from the ground in nearly all latitudes and localities over the earth, yet there are spots in all climes whose soil lack the ingredients to feed them. How very grateful would the people be who inhabit the *Fens* of England, *Bogs* of Ireland, *Moors* of Scotland, *Prairies* of America, the great *Deserts* throughout the world, if they could have belts and groups of evergreen trees to break the force of the perpetual winds which are extremely disagreeable as well as very destructive at times. How blest are we, with evergreen trees and shrubs clothing our mountains, embelishing our plains, and decorating our deep dells through which flow silvery streams of water. How beautiful they look, especially in winter while the deciduous ornaments of summer stand leafless, as desolated wastes. But beauty is not the only virtue of evergreens, they give an admirable shelter and protection during the inclemency of winter weather.

Many of the failures of our fruiting trees and ornamental flowering plants would not occur if the cold sides of the ground were thickly set with evergreen trees to screen them from sudden cold gusts. Those who have the means, and fail to give such shelter to their grounds; surely do not appreciate the blessings so generously spread out before them.

[Our excellent correspondent might have added, how stupid are those who, in States and places where evergreens could almost be had for the planting, neglect the precious boon, and freeze and blow away their lives in utter ignorance of the warmth and comfort of an Evergreen sheltered place. The bare and desolate looking winter homesteads of Pennsylvanians are the surprise of every Western farmer.—Ed.]

The Gardener's Monthly.

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☞ All Communications for the Editor should be addressed, "Thomas Meehan, Germantown, Philadelphia," and Business Letters directed to "W. G. P. Brinckloe, Box Philadelphia."

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ORCHIDÆOUS PLANTS.

While on a hasty look through the grounds of Mr. Weightman, near Philadelphia, we were reminded how unfortunate it is that people will still think the culture of air plants should be costly and expensive. Here were several dozen of beautiful kinds, including Gongoras, Catleyas, Oncidiums, Stanhopeas and Dendrobiums, in perfect health and vigor, growing in baskets suspended in a sunk pit, in which just enough fire was kept to keep Stevias and such like plants growing through winter for cut flowers.

How very different this to the plan pursued by our fathers. The writer has a painful recollection of a year of suffocation in an orchidæa house, where the temperature was never allowed to fall below 90°,—a moist atmosphere, where no vapor was allowed to escape, and no rays of the sun ever allowed to penetrate. The orchidæa house of the past generation was a place devoted to melancholy and misery,—where the proprietor hastened in to catch a glance of the curious forms of vegetation, and hastened to the glorious world outside as speedily as possible.

There are, probably, no class of plants which unite beauty and sweetness, with so much singularity of form as this of the Orchidæa or air-plants. While at Mr. Weightman's the *Gongora* had a beautiful raceme in full flower, which starting from the base of the bulb at the surface of the soil, crept over the side of the basket and hung gracefully over the side. The rich, aromatic fragrance filled the whole house: and though the Gongora is not amongst the showiest of Orchidæa, its flower is remarkable for its striking resemblance to a dead, winged insect. The cut is an illustration of a flower of a Gongora.



Mr. Johnson, Mr. Weightman's gardener, manages these plants extremely well, and he expressly told us his art consisted mainly in letting them alone. He syringes them once or twice a week, which was about all the treatment they received.

We have, wild, some forms of Orchidæa, but they are mainly terrestrial, growing in swamps or shady woods, which, when examined, bear curious resemblances to insects, and have other odd shapes. But very few of them have the remarkable forms of the Epiphytal, or strictly air-growing kinds of more tropical regions. The Mocassin flower or *Cypripedium*, is however, an exception. These are scattered over the United States, but are nowhere plentiful. The labellum, or lower lip of the flower, is turned up, resembling an Indian shoe. In Europe the Cypripediums are termed Lady's Slipper. The southern and South American species are, however, quite as pretty as ours, and much more easy to grow. One, C. insignis, will grow well in any greenhouse or warm room, and endure almost any treatment, and bloom freely all winter. Specimens of this have been exhibited before the Pennsylvania Horticultural Society with hundreds of flowers.

Many of the terrestrial Orchids of the south are curious, however, besides the Mocassin flowers.—About Panama grows the "Flower of the Holy Spirit," which, when exhibited from the greenhouses of Caleb Cope, Esq., in Philadelphia, some years ago, drew such crowds to the Horticultural Society's show. This plant, however, is not so showy as some, having waxy, white flowers about an inch across, in the centre of which seems to be a dove sitting on a nest. This flower, the Peristeria elata, is represented in the annexed cut.



To many, the singularity of form which these plants present in their flowers, is one of their greatest charms. We have, in a former volume, figured

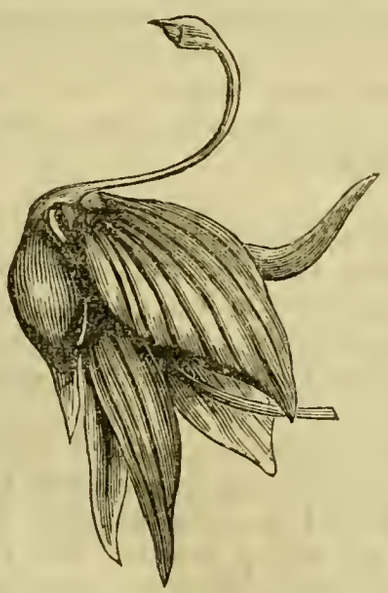
the Oncidium papilio, or butterfly orchis,—and this is now often seen in collections. But a much more curious, though not so showy a plant, is the Pigeon Orchid, *Cirrhœa tristis*, which, with their expanded wings, seem like little flocks of pigeons in flight.



There are curiosities of growth as well as of form. Dendrobiums with their knotted stems looking like whittled sticks, suddenly and as if by magic becoming clothed with charming blossoms, and the Stanhopea which pushes out its flower right through the pot or basket in which the plant is growing, seeming almost as much a marvel as if we found a tree growing with its roots in the air, and the branches in the ground.

Punch once said that a lady was reading from Hooker's Botanical Magazine a description of *Catasetum Wailesii*, a curious orchidæa and translated it Mr. Wailes' Catasetum; another lady, who no doubt prepared for any mystery, after having studied these curious plants, hearing it read that Mr. Wailes' "cat has eat him," thought it a very dreadful death to die.

We close these remarks, written in the hope that they may attract the notice of those having greenhouses to these interesting plants, with a sketch of the singular Swan orchid *Cychnoches ventricosnm*.



Why these plants should present these curious forms has puzzled many a wise head, but every day we are learning more. It is now clearly ascertained that they cannot hybridize themselves,—that insects must do it for them. It would be curious if it should be made out that the peculiar structures are for the purpose of deceiving and attracting insects.

The flowers of the Stapelia deceive the blow-fly by their stench into laying myriads of eggs into them as it would into bad meat, though for what purpose is not known; perhaps it may also be for the purpose of attracting insects that these flowers are so curiously formed.

PLANTING LARGE AND SMALL POTATOES.

In the *Country Gentleman*, of November 22, is an interesting editorial on this subject which is worthy of particular attention. An extract from an English paper is referred to, wherein the writer found that large potatoes, weighing half a pound, used for seed, produced potatoes double the size of small potatoes used in the same way. The writer of the paper in the *Country Gentleman* tried a similar experiment, but the result was only one-tenth in favor of the large-sized sets; and he judges that the great difference in favor of large sets, which the English experimentor observed, was owing to temporary and local causes, rather than to the differences in the sizes of the sets employed.

There is much force in this objection, not only as regards these potato experiments, but about horticultural experiments of all kinds. Indeed, to mistake coincidences for causes is the common error of mankind; and it is by no means certain that the reason there was only ten per cent in favor of the American experiment, with large potatoes, would not be found in "temporary and local" causes.

Indeed, the objection comes with greater force in the latter case; for if one man fails to do what another successfully accomplishes, it is clear that the failure is not that the feat is impossible, but simply that one man failed to do what another did.

This large potato planting is no new idea. We have heard it discussed for twenty years, and seen experiments frequently and carefully made during that time, and are quite sure the temporary and local cause of many failures to derive a heavier crop from a large potato than from a small one, is, that in the latter case the sets are *placed too close*. With sets eighteen or twenty inches apart, we have invariably seen quite as good crops from small potatoes as from the larger sets; but with two to three feet as the distance between the sets, almost all the experiments we have seen, have been in favor of a heavier product from a large potato than a small one.

In a practical point of view, however, we doubt

whether it is not more profitable to use rather small potatoes. Large potatoes can always be sold, while smaller ones are of little use to the raiser, and thus at the outset, large potatoes meet a serious objection. Then, if they take more ground to grow, it is still worse for them.

From what we have seen there is little more weight per acre from large than from small sets, but we think there is undoubtedly more large and saleable potatoes from a crop of large than of small planted ones. But on the whole, we are not yet convinced that there is so much profit in large sets over small ones as some of our friends suppose.

Yet it is like a good many abstract theories which seem right, and which practically are found hard to realize. If we take a potato no larger than a pea, and plant it by the side of one as large as one's foot, we then find that the result is overwhelmingly in favor of the large potato, so that the least chance of error will be to lean towards the large size. Like the honest shopkeeper who was as "moral as he could afford to be," we must plant them as large as we can find it profitable, and we expect it will be found to be in about the medium size.

Notes and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Seed of the Purple-Leaved Beech—*R., Cincinnati, Ohio.*—Inquiring at some Eastern nurseries for this beautiful tree, I was astonished at the price asked for them. I am anxious to have enough to make an avenue of them, on a property I propose to improve some time in the future, and as immediate planting is not so much of an object, would like to raise enough trees myself. Can you tell me where I can buy seeds?

[The Purple Beech is not a species that can be raised from seed, but an accidental form found in a forest near Sondershousen, in Thuringia, many years ago. Seedlings come green and pale copper-colour. It is perpetuated only by grafting on the green.]

Horticulture in Congress.—Recently Mr. Delano expressed contempt for the Honorable Isaac Newton, because "he thought the Irish potato was a native of Pennsylvania." But Mr. Russel Thayer confused the current of Mr Delano's thoughts by asking him if he knew where it was a native of? Mr. Thaddeus Stevens enlightened his auditors by giving the West Indies as its native place, and Friend Isaac seems to have escaped while the hunters got on the scent of this potato question. Still there is some hope when it is even insinuated in Congress that something more than party politics should be a requirement to be an office-holder.

Salal Berry—*J. R., Van Buren, Arkansas.*—Please give through the *Monthly* the name of the enclosed seed, which I received from a friend in Oregon, who writes that it is called Salal Berry, and has sweet-scented flowers, and he thinks well worth culture in the Eastern States.

[This is the *Gaultheria Shallon* of Botanists—a pretty dwarf bush, with waxy white flowers, but very impatient of cultivation. It has been in nurserymen's catalogues in times past, but seems to have died completely out.]

English Sparrows.—*H.*, writes: "What do you think about English Sparrows?

I think the Sparrow will destroy more fruit buds, cherries, and strawberries, &c., than the insects they will devour."

[The English house Sparrow, which it is proposed to introduce, is a gramnivorous bird, feeding however on carneous matter whenever it cannot get fruit and seed.

Our correspondent, however, need not be alarmed for the consequences of introducing the bird, as such efforts are done in ignorance of ornithological facts. The bird is not a migrator, and our Pennsylvania winters would prove fatal to it. "H." will never, therefore, see his "buds, cherries, &c." eaten by these birds. It is said the bird has been "naturalized" at Lewellyn Park, New Jersey. We do not believe it.]

Raphanus caudatus.—Of this new candidate for the kitchen, a Rochester correspondent writes: "I wish very much to inquire if you know anything of *Raphanus caudatus.* It rather strikes me as being an old acquaintance, but perhaps I am mistaken."

[The *species* under the name of "Madras Radish" has been frequently introduced here, and died out without becoming popular. We have never seen any variety, however, with pods over a few inches in length, while the variety advertised is said to be *several feet.* It *may be* a desirable introduction. We are not sanguine, but would not discourage trials.]

CHARCOAL FOR MANURE—*N., Moline, Illinois.*—I have a few wagon loads of coarsely pulverized charcoal, that has been used in rectifying liquors, that I have hauled home, hoping to be able to make a good use of it in some way, either in propagating grape vines, or on my land some way. My soil is first-rate for making brick with, requiring no more sand or clay. Is it good for making a porous soil for grape cuttings? If you can tell me the proper use to make of it I shall be much obliged."

[We have for years past had this subject of charcoal before the public. Almost all writers recommend it as good to mix with soil, either as a "collector of ammonia," or to act mechanically as rendering heavy soil porous. We have given the matter careful attention, *practically*, but think it one of the "closet" theories, which are right in the abstract, but no use in practice. We advise our correspondent to burn his charcoal, and he will find more use from the wood ashes than from the charcoal in a raw state.]

HORTICOLA'S METHOD OF INCREASING HARDINESS IN THE GRAPE VINE.—*C. F., Elwood, N. J.*, writes: "In the December number of your valuable magazine, in an article by "Horticola," (page 363–4,) is mentioned a new method of strengthening, or increasing the hardiness of grape vines, but no particulars are given, nor are there any in the January number. If Horticola could be induced to explain the method fully, I doubt not it would be welcomed by *very many* of your readers, as well as myself."

[Horticola's plan, we thought clearly stated; and was grafting the tender vines on hardy Clinton roots.]

CHRISTINE OR TELEGRAPH GRAPE.—*S., Hoboken, N. J.*, asks: "Do you know anything of the Christine or Telegraph grape? is it good?"

[This variety was exhibited some years ago, before the Horticultural Society, and reported in the *Monthly* as the *Christine*. It is an early grape, well characterized by very close, compact bunches of medium-sized black berries; not of the superior flavor of some of the more delicate kinds, but like the Concord, a free grower and sure bearer, and as well worth planting as scores of fancy kinds sent out at high prices instead of given freely as this one was.]

ABNORMAL APPLE TREE SHOOTS.—*N. E. C., Cleveland, O.*, says:—"Having purchased a small *farm* the past fall, I have been trying, without previous experience, to prune my young apple trees. In doing this I have followed the rules laid down in the books, to cut out all crooked and interfering or interlaceing branches, but have been somewhat puzzled what to do with the ends of the branches on the new shoots of the past season. I have, however, adopted the plan (whether it is right or wrong I do not know) of cutting them back to within a few buds of the previous years' growth, always leaving the terminal bud on the side towards which I wish the new shoot to grow. In looking over my trees I find one or two which have to me a singular appearance. Upon the ends of all of the last (1865) year's shoots, there is a swelling nearly as large as a hickory nut, from each side of which springs a short (4 to 10 inches) new shoot, and between them is the remains of a blasted fruit. This may be common for all I know, but it is new to me. In pruning I have cut them all away, and cut back to a good bud on the two year shoots. Am I right?"

[We have never seen such processes on the apple tree as our correspondent describes, and should be very glad of specimens for examination. It is no doubt caused either by a parasitic fungus, or an insect. In either case he does right to cut them away, and if they appear next year take them off and destroy them before they mature.]

EVERGREENS FOR THE WEST.—*Mr. R. Douglas, Waukegan, Ills.*, writes: "We *Western men* would like to add a few more to our very meagre list of Evergreens that will endure our parching winds, and from conversations I had with several of them a few days since, at Champaign, I know they would be delighted to hear from you in the *Monthly* on this subject. I see the Corsican Pine is attracting a good deal of attention in Europe. In England they are calling it more valuable than Larch; we dont know how it stands the winters here, either East or West.

I was asked by several tree planters whether the Abies Douglassi was hardy here, and from all I have had to do with it and seen of it here, I would not call it hardy; and I think that was its reputation East a few years since. But I have been told it is perfectly hardy here, although I have not seen one specimen six feet high in the State. I simply mention this to let you see that we are in the dark here."

[The Corsican Pine, *Pinus Laricio*, is very much in appearance like the Austrian, but more

rapid and with a somewhat columnar growth. It is not so handsome as the Austrian.

Our own native pines, *P. rubra*, *P. mitis* and *P. rigida*, are well worth growing for their rapidity, hardiness and beauty. There are few things, however, which for these points can excel the White Austrian and Scotch Pines. Amongst the spruces the Hemlock and Norway are well known. The Douglas spruce is only occasionally hardy; specimens with hardier constitutions than others sometimes live through a severe winter, but most of them get injured. The *Menzies Spruce*, Abies Menziesii, appears much hardier, and a beautiful tree every way. None of the Fir tribe (*Picea*) are of rapid growth enough for hurried western wants. *Cupressus Lawsoniana*, *Thujiopsis borealis*, and *Libocedrus decurrens*, are all hardy and extremely beautiful, keeping *green* through the winter, but they are all of the arborvitæ kind of trees, and will not probably be vigorous enough for timber screens, though invaluable for hedges and close shelter.]

Climate of Racine Co., Wisconsin.—*C. M., Rochester, Wis.*, writes: "The past season was dry and cold to near harvest, when it commenced to rain, and rained almost constantly until the 20th of September, when we had two hard frosts, which killed the corn and buckwheat, which was about half ripe at the time. After the frost we had a long spell of dry, warm weather. Frost to kill vegetation seldom comes until October. Our land is fit to sow about the first of April; cattle are fed from the first of December to the first of May. The weather at the present time (Dec. 6) is mild; no frost in the ground; plowing is going on."

Low Evergreens for Edgings—*Mrs. I. C., Mechanicsville, N. Y.*—What *very* small growing evergreen is there that is hardy for a low hedge, or edging a little larger than Box, which is not hardy here except in sheltered situations, and has to be covered with boughs to keep the sun from killing it in spring? Please answer in the *Monthly*."

[Thuja ericoides, Thuja globosa, and Iberis Sempervirens are the best things we know for such purposes. The last, however, is no hardier than box.]

Bartlett Pear and Delaware Grape.—"I had intended to respond fully to the article published in your November *Monthly*, page 327, on the questions as to the Bartlett Pear and Delaware Grape, but I cannot devote thereto the requisite time at present. I wish, however, to record this much. Robert Manning, Sr., and myself, investigated the question of the identity of the *Bartlett* pear, so-called, because Mr. Bartlett, near Boston, brought it into notice there, with the *Williams' Bon Chretien* of England, and we were fully satisfied of their identity; and I have never seen aught to reverse that opinion. And in regard to the Delaware Grape, its origin in France, and its introduction to our country, it is as clearly traced as is the introduction of the Caucasian race to these shores; and if this were not so, the peculiar, distinguishing traits which characterize the varieties of the *Vitis vinifera* from all our American species, are so convincingly manifested, that I would as soon think of claiming the African negro as belonging to our Aborigines, as to class the Delaware grape as one belonging to any of our American species. Had our cultivators of the Grape adopted the facts and positive evidences as to this vine, which I presented in my "Descriptive Catalogue of Foreign and Native Grapes," issued in 1859, instead of being led astray by interested parties, they would have saved hundreds of thousands of dollars, which are now being sacrificed by the rejection of this grape from their vineyards. Wm. R. Prince.

[Mr. Prince asked if he might have space to reply to our remarks on the contradictory accounts of the history of the Bartlett Pear, and on the foreign origin of the Delaware grape, and we promised to let him. We do not know that this is any reply, for we have not disputed the fact that Mr. Prince and Robert Manning regard the Bartlett and Bon Chretien as identical; nor have we made the identity of the two so much a question at all as the *incidents of its history*; and in regard to the Delaware grape, if any "positive evidences, clearly tracing its introduction to our country from its origin in France," have appeared in print, we have not seen such clear account.]

Pear from a Mountain Ash Stock.—This curious fact we have before alluded to, and have since had so many interesting letters in reference to it, that we append the following, which was not written, as will be seen, for publication:—

Geneseo, Oct. 8th, 1866.

I am glad my account of this obtruding pear sprout interests you. To me it is *very* interesting. I would rather eradicate and cast out one of my best bearing pear trees than loose that sprout. The tree was grafted 6 or 7 years ago, and mountain ash sprouts have come out each season at 5 or 6 places within a foot of the pear. I have rubbed them off, leaving a rough place. They come again

in those places, and now the *lower* one is a *pear* sprout from the centre of one of those mushy places.

When I show it to folks, they mostly pronounce it at once a bud inserted, but as soon as they look close they give that up. No person in the habit of budding would think it inserted there; it only came out last spring. I know none here who could make a drawing of it. Top of the ash is 8 and lower part of the pear is 11 inches in circumference, but the bark of both is rather smooth yet, and would require, I think, a skillful artist to present it distinctly. But if a chance to have it done should occur, I will have it tried. When the leaves are off and while yet young, smooth bark, it will not appear so interesting.

My locust was a far more attractive object. Near 25 years ago, in Ashland, Ohio, in a very conspicuous place, just inside the gate, on a public street, grafted 3 feet high, stock 2 inches diameter, a great spreading top, blooming for 2 or 3 years in great profusion, it attracted great attention; then when beginning (3d year) to bloom again, the wind took the graft and left the stock. Observers had not ceased to regret and lament, when numerous sprouts near the top began to show the red hairy appearance of the rose acacia; not a leaf of the kind looked for, but in 9 or 10 inches of the top, 8 or 10 branches of regular flowering locust grew 2 to 4 feet long, and flowered some the same season. The next summer it spread and blossomed just as if it had as much right to as any other.

There were no leaves of the black locust to show the contrast; but there is such an obvious difference between the bark of the two, and the general appearance. Then it was in public view, and attracted much attention, even before it was broken off, and through all the changes was seen almost daily by many folks, some of whom would yet make affidavit to the facts I have stated. Since then I have several times broken out locust grafts, but never with the same result. But the proportion of stock sprouts that are from the graft, may be greater than we yet think; it is seldom that sprouts come below the graft, at least after they have been grafted 2 or 3 years, and if pear on pear, or apple, etc., etc., they would not be distinguished readily, even if attention were directed that way.

I wish the public had these facts before their minds as I have, more facts might come to light than we think of at present.

But I don't feel like going before the public with my name to this matter. It is not pleasant to have one's assertion disbelieved, even by strangers, and many would do that in this case."

Raising Evergreens.—*W. H. T., Jerusalem, Monroe Co., Ohio.*—"Can you refer me to any treatise on the culture of evergreens, from the planting of the seed, through the different stages of nursery culture?"

[Fuller's new book is best.]

Prolific Potatoes—*Otto & Achelis, Westchester, Pa.*—"In the January number of the *Gardeners' Monthly*, page 20, we read: "Mr. Saunders, of the U. S. Experimental Garden, writes: From 1 bushel of the Harison Potatoes I got 35 in return. Can this be excelled?"

Answer: It can. We planted in the month of June 1 bushel, and got 38 in return. Can *this* be excelled?

Rose Imperatrice Josephine.—*C. C., Pottsville, Pa.*, inquires: "In the rose catalogue of Mr. Paul, London, a Bourbon rose, *Imperatrice Eugenie* is described. The description answers to the *Imperatrice Josephine* of American catalogues. The last named rose is not mentioned in Mr. Paul's list. Can any of your readers of the *Monthly* tell if they are one and the same rose?"

Books, Catalogues, &c.

The American Gardener's Assistant; in three parts: by Thomas Bridgeman. New Edition: by S. Edward Todd. New York; published by William Wood & Co., 1867.

Few works on American Gardening have been more popular or more useful than Mr. Bridgeman's, which has really rivalled McMahon's Gardener's Calender in its claims to be the "Abercrombie of America." It has been considered an essential in a horticultural library, and will perhaps be so for many years to come.

It is a very difficult task to edit an old work properly, so as to bring it down to modern times. If an editor alter the original much, it ceases to be the original work, and the editor becomes in reality the author. If the present work were altered to what it might be, it is evident it would be no longer *Bridgeman's Gardener's Assistant*. Yet it seems to us that, in a book professedly "revised, enlarged and illustrated," such statements as that the "English Jargonelle is the best pear of its season"—or, that "the Chinese Wistaria is a recent introduction from China, not yet common in our nurseries," and many similar ones, true enough when Bridgeman

wrote, might, we think, be a little qualified in a "revised" work.

However, we have said it is questionable how far an author's work should be amended, and we have only to say that those who have not Bridgeman's work in their collection, will find this edition the handsomest and best that has been issued.

Texas Geological Survey; Preliminary Report: by S. B. Buckley, 1866.

We are indebted to the author for a copy of this interesting pamphlet, from which it appears that the mineral and agricultural resources of the State are equal to the most favored of the older States, and foreshadows a brilliant career for Texas as soon as her industrial resources shall have become properly developed.

The Cultivation of the Grape: by A. M. Burns, Manhattan, Kansas.

A small tract, showing what has been done, and what may be, with the grape, in Kansas—a very favorable view.

The American Naturalist; a Popular Illustrated Magazine of Natural History: Published monthly by the Essex Institute, Salem, Mass.

The object of this Journal is to supply a long existing demand for a popular illustrated magazine of natural history, devoted to the exposition of scientific topics in a free and familiar manner, without those technicalities which often render the mass of such reading tedious and difficult. Such a magazine is required, and we hope it will meet with encouragement from a large number of readers, when issued.

New and Rare Plants.

In the August number of the *Botanical Magazine* are figures and descriptions of the following:—

Kleinia fulgens.—An interesting succulent, suffruticose composite, sent from Port Natal to W. W. Saunders, Esq., F.R.S. It attains a height of two to three feet; the leaves obovate-oblong, bluntly serrate, and glaucous. The flower-heads are an inch and a half long, the florets bright vermilion-orange.

Fremontia Californica.—A singular and beautiful hardy shrub from California; first flowered by Messrs. Veitch in June of the present year. It was discovered during Colonel Fremont's United States Expedition to the Rocky Mountains in 1846. The botanical characters of the plant are anomalous, and it is an open question whether it shall be referred to the order Malvaceæ or Sterculiaceæ. In its native country it is a woody shrub, resembling a fig tree; the leaves three to seven lobed, peduncles one flowered; the flowers numerous, golden-yellow, two to two and a half inches in diameter. "It is undoubtedly the choicest early-flowering shrub introduced of late years, and more than rivals the Forsythias in many respects."

Fernandesia robusta.—This is the largest of this genus of orchids; it is a native of Guatemala, and is nearly related to the Brazilian *F. robusta*, from which it differs in being larger in all its parts. The leaves are keeled, an inch and a half long, peduncles drooping, one-flowered; the flowers two-thirds of an inch long, bright yellow, barred and spotted on the lower portion af the lip with red.

Sempervivum Paivæ.—This house leek was brought to the Royal Gardens by the Rev. R. T. Lowe, M.A., F.L.S., who discovered it in the island of Gomera, one of the Canary group. The species belongs to the same group as *S. urbicum*, *S. ciliatum*, and *S. Haworthii*. It is a straggling, tortuously branched, low shrub; leaves one inch to two and a half inches long, highly glaucous; panicle terminal, six to eight inches long, and broad; flowers rather large, green, scentless.

Sanchezia nobilis.—A magificent Acanthaceous plant, discovered by Mr. Pearce in Ecuador in 1863, and flowered in Messrs. Veitch's nursery, Chelsea, in June last. It is a stout, erect, herbaceous plant; leaves three inches to nine inches long, oblong-lanceolate; inflorescence erect, terminal, and forming a dense panicle of beautifully colored flowers, the large bracts bright red, the tubular corollas yellow.

Saccolabium ampullaceum.—A pretty orchid from Sylhet, quite distinct from any other species known at present. It is of dwarf habit, not rising more than six inches high, with a simple stem. Leaves barely a span long, very thick, ligulate; flowers of a deep rose color, in erect, oblong, axillary racemes. "Nothing can be more charming than its bright rose-colored racemes, which are freely produced, and last long in beauty."

Pelargoniums, Bedding.—The following six Zonale Geraniums were raised by Shirley Hibberd, Esq., the eminent Horticulturist. It is well known that this gentleman has for some years given his close attention to this class of Bedding Plants, planting in his own experimental garden every kind that has been raised, and carefully testing or proving

their worth as regards habit and novelty by comparison, &c. He has already raised several valuable kinds, but prior to this season none have been sent out under his name.

Andrew Marvel.—Leaves bright green, with broad brownish zone; flowers large, and of remarkable substance and smoothness; color vermilion red; a fine variety.

Evangeline.—Leaves rich green, with dark zone; smooth circular flowers, color French white, shading to delicate rose blush, large globular trusses; very distinct and beautiful.

H. W. Longfellow.—Flowers finely formed, color deep salmon flesh with red centre, with trusses large and globular; leaves dark green, with brown zone; a very fine variety.

Kate Anderson.—Flowers average size and form, trusses globular, color the most brilliant shade of true scarlet; blooming profusely, likely to prove the most effective scarlet known; leaves deeply zoned.

Magna Charta.—Flowers very large and smooth, top petals the same size as the bottom ones, color deep red; leaves pale green, with obscure zone.

May Queen.—Bright green foliage, flowers large, well formed and smooth; color clear rosy pink shading to white, trusses large and round. A great improvement on Beauté de Surennes, being much richer in color.

QUERCUS RAVENSCROFTIANA.—Leaves thick, leathery, and wooly beneath; oblong-eliptical, about two inches in length; sessile, disposed alternately on each side of the twig; margins entire, or very slightly sinuated, slightly curved, one side of the leaf often a little larger than the other, the lateral nerves branching off from the mid rib nearly at right angles, appearing as depressions on the upper side of the leaf; they are short, and usually continue without divarication to the edge of the leaf, but sometimes they break into two. At the base of each leaf, where it springs from the stem, is a bud. The buds are all minute. The twig purplish brown, somewhat tomentose towards the apex. Flower and fruit not known.

This is a very remarkable species, and, although our materials are so imperfect, we make it known for more than one reason. In the first place, it has generally been supposed that no Oaks occur in South America. There are plenty in Mexico, but hitherto, so far as we know, none have been described from the southern continent. It is, therefore, an important contribution to the geographical distribution of the Oak. In the next place, it is peculiar in its appearance and texture, and is said to be ornamental in appearance. We do not yet know whether it will prove hardy or not.

It has been named after Mr. Ravenscroft, of Messrs. Lawson & Son's establishment, whose long-continued labors for the advancement of practical arboriculture and agriculture do not the less deserve acknowledgment that they have been quiet and unobtrusive.—A. MURRAY, in *Gard. Chronicle.*

Domestic Intelligence.

MANAGING OSAGE ORANGE HEDGES IN ILLINOIS.—*Preparation of the Ground.*—The hedge-row should be ploughed out the fall before the hedge is to be set, and finished with a deep "dead-furrow" on the line where the plants are to be set. In the spring, before setting, "back-furrow" slightly, ridging the ground where the plants are to stand; and pass the harrow over it two or three times. On wet or sprouty ground, do not open a furrow on the line in the fall ploughing, but "BACK-FURROW" each time the ground is ploughed, thereby ridging up the bed where the plants are to stand. Plants set on low, wet ground, are liable to be thrown out by the first winter frost.

Handling and Assorting the Plants.—As soon as the cold weather is over, remove the straw from the beds. When the frost is out of the ground, and before the buds begin to swell, the dirt should be thrown off, and the plants be taken out and carefully assorted into two or three classes, according to size—all doubtful plants being thrown one side. As they are assorted, they should be trenched in, each lot by itself, leaving two or three inches of the tops exposed to the sun, in which condition they may remain till they are wanted for planting. Should the plants at any time become partially dried, they can be revived by soaking in water or being buried, so that EACH plant shall come in contact with moist earth.

Time of Planting.—The best time to set the hedge is when the buds have started; though, if the season is favorable, it will do as late as the 15th or 20th of June. The buds may be kept back for late planting by leaving the winter covering on the beds until near the time the plants are wanted for the hedge-row. Hedges set early can be RE-SET the same season, by reserving a few of the BEST plants until a seasonable time in June, when those that have failed to grow can be replaced by such as you know to be good.

Number of Plants per Rod.—Though a good

hedge may be grown by using any number of plants from 16 to 50 per rod, a long series of experiments in hedging, in which the plants have been set from four to sixteen inches apart, have convinced me that about eight inches apart, or twenty-five plants to the rod, is the desired distance at which to set them, in order to insure the best and most reliable fence.

Transplanting.—An even, perfect stand, and uniformity of growth, in a beaut ful straight line, are the things most essential to success. When the plants are taken to the field, they should be distributed first along the line about 100 in a place, and "heeled in" until wanted; and never left exposed to the sun or frost. Procure a strong cord, say from ten to fifteen rods long, marked PLAINLY with red yarn, eight inches, or the distance you want your plants apart. There are two methods of setting. One is, to be set with the hedge-spade (the blade of which is longer and narrower than the common spade,) in which you thrust in your spade its full length, slanting. You then raise the handle slightly, letting a boy push the plant down at least three inches deeper than it stood in the nursery, tramping the dirt firmly to the plants with your foot. If the ground is wet, omit the tramping, as it will cause the ground to bake. The other method of setting is that known as "setting in the furrow." In either mode the line should be carefully staked; but twice the number of stakes are required in the latter. In opening the furrow, use a strong, steady team and good plough, in the hands of an experienced ploughman. Any slight crook may be straightened with the spade. After the furrow is opened and line stretched, take a bundle of assorted plants, and placing them against the LAND side, fill in a little dirt with a hoe, pressing it to the roots, and when the plants are all in, fill up the furrow with a plow. But be careful not to disturb the plants with the singletree, nor allow the horse to misplace them with his feet. The roots of a sound, healthy plant, when cut, presents a white, bright appearance; those of a yellow, dingy cast, between the bark and wood, should be rejected as DOUBTFUL. A good heavy coat of mulching applied immediately after the plants are set, will be of great advantage in keeping back the weeds—preventing injury by the drought, and furnishing protection to the hedge the first winter.

Re-setting.—If you fail in getting a perfect stand the first season, procure enough EXTRA STRONG plants the second season, and fill up all gaps as soon as the buds begin to swell. Re-setting after the second season is of little use.

Cultivation.—If well mulched, the hedge will require but little further attention the first year, otherwise it should be kept clean and free from all weeds and grass, and covered up with a furrow from each side, before the ground freezes—a two-horse plow being used. In the spring uncover, and cultivate as you would a row of corn, which cultivation should be repeated every season till the hedge is five or six years old. Manure should be used in all places in the hedge-row where the soil is too thin to give a good yield of corn, under good treatment.

Training the Hedge.—It has been demonstrated beyond a doubt, that this clipping and shortening-in process from its infancy, (that was so universally recommended a few years ago,) is not the proper way to treat a hedge. Most hedges so treated have the appearance, when not in foliage, of standing on stilts, and make but poor barriers against hogs or sheep. Many farmers seem quite indifferent on this point, however, as hogs are not allowed the liberty of the streets; yet, would there not be much grain saved after the wheat or corn is harvested, by pasturing the stubble or stalk-field with hogs? Hog-proof fences are necessary to keep hogs IN, if not OUT. All the trimming that is required while the hedge is young, is an occasional clipping of the overgrown shoots, which should be done late in June, in order to check them, so as to obtain uniformity of growth.

Plashing.—This should be done until the hedge is five or six years old, when it will be from ten to twelve feet high, and the plants from one and a half to two inches in diameter at the base. A firm, solid foundation must be had, if you expect a substantial, lasting fence; and if plashed while the plants are little more than SWITCHES, this will not be had. Before plashing, which may be done in mild weather in winter or early spring—before the sap starts—trim in the sides of the hedge with a hedge-slasher or corn-knife, to two feet in width. With a light, sharp hatchet, cut the plant about half off at the collar, or at the yellow bark. Be careful to cut low. Begin at one end, pressing back the plants as you cut them, leaving about every fifth or sixth plant. Cut it off three or four feet high; weave others down in them, pressing down so that they will not raise up. Be careful not to hack or cut the plants any deeper than necessary to prevent them from raising up. When through, gather and burn all brush, unless it is needed to patch up old fences, for which it answers an excellent purpose. A hedge thus treated, will throw up numerous shoots from the stump and along the trunk, which, with the part laid down, will make a perfect net-work of

thorns. Many of the unsightly brush-rows designed for hedges when set, may yet be made passable fences by the above treatment.

After-training.—The hedge should be trimmed twice annually—in the fall or early spring, and last of June. Mr. D. Oliver, of Carthage, Ill., has invented a horse-power hedge-trimmer, which promises to do this work well, with little trouble and expense.—W. H. Mann.

Raspberries in New York.— Prof. T. R. Burgess, Ulster Co., says: "The soil along the Hudson river on which Antwerp Raspberries are grown and succeed so well, is of a slaty character—warm in its nature. In the town of Marlborough, rocks protrude frequently to the surface, and the fruit is cultivated in the valleys and spaces around the rocks. Strawberries succeed in almost any soil, the richer the better, if there is a large proportion of sand and gravel mixed in. A high hill-side, having a good ventilation and a warm soil, is best for grapes; but on the lakes and the Hudson river they ripen better near the water than farther away on the upland.

The Nicholson Pavement is composed of wooden blocks laid upon end across the street, grain exposed, upon a foundation or flooring of planks, the whole being saturated in heated tar, to prevent decay. The rows of blocks are kept separate and in place by narrow strips or pickets, and the intervals thus caused are filled with a closely-packed mixture of gravel and tar.

First. The blocks of wood are set upon end, and are kept dry by coal tar below, between and above them, which prevents decay.

Second. Being perfectly geometrical in form, the pieces are easily laid with the utmost precision, so as to leave no vacant spaces between or below them to receive dirt, by which even iron blocks would be thrown out of position.

Third. The blocks being supported by a continuous plank floor, saturated with coal tar, no block can settle below its fellows, and no dirt can work in from below to displace them; so that the wearing surface being kept even, there is no unequal action on the different blocks to hammer them still further out of position, as is the case with all stone and iron pavements.

Fourth. The exposed surface is at first covered with a layer of coal tar, sand and gravel.

By the time this is scattered, washed, and ground off, the surface of the wood seems to appear to the eye, and to be exposed to the actual contact of horse and vehicle upon its fibres, but upon closer examination it will be found that the sharpest and hardest instrument will not penetrate, or even reach the grain or surface of the wood itself. The sand and gravel, adhering to the wood by means of the coal tar, become partially pulverized, and are driven into the grain of the wood by the iron shoes and tires, in such a manner that the exposed surfaces are actually coated with an impenetrable layer of pulverized sand, which, though it completely protects the wood from wear, does not destroy its quality of preventing a severe concussion with the iron shoe and tire.

Foreign Intelligence.

Doyenne du Comice Pear.—Of this, one of our newer French Pears of first-class excellence, in season in October and November.

The fruit is large and obovate, the skin is smooth and of a pale greenish color, with here and there irregular patches of russet on the sunny side, which is also frequently flushed with red; the eye is small, and set in an even basin; the stalk is short and thick, and is inserted obliquely; the flesh is white, very juicy, tender, buttery, rich, and melting. Specimens of this variety were submitted for the opinion of the Fruit Committee of the Royal Horticultural Society, at their meeting a short time since, and were "pronounced to be excellent." In short, it is one of the finest Pears of its season, and is eminently deserving of recommendation. In size it is equal to Duchesse d'Angoulême, but it is much superior to that variety in flavor, which is more like that of Marie Louise, or Glout Morceau. It keeps longer fit for use than most varieties, a point not to be overlooked, for many good Pears have only a short season in which they can be called eatable. This is not the case with Doyenne du Comice, for if ripe and good to-day, it will be good to-morrow, and for many days afterwards. The tree is hardy and a good bearer, succeeding well on the Quince as a pyramid or standard.—A. F. B., in *Gar. Chron.*

Winter-Flowering Epiphyllums.—It is much the fashion to seek after "good winter-flowering things," but with all that, the finest of early winter-flowering plants are but very imperfectly known. These are the varieties of Epiphyllum truncatum. There is no other winter-flowering plant whatever that possesses half the useful qualities of this, and yet how rarely is it seen well grown in gardens! I have

seen specimens of it four feet high and nearly as much through, and as the branchlets hung pendulously, as is their wont, and nearly hid the pot, while the top was perfectly well furnished, it needs but a very slight effort to imagine what pre-eminently beautiful things they must have been when in flower, just before and about Christmas, according to the temperature to which they are treated. And they have been grown larger than that, and particularly well, by Mr. Barnes, now of the Camberwell Nurseries, who worked his Pereskia stock so that the Epiphyllum formed a diversified pyramid. Of course, they must be on the Pereskia, or on some equally good stock, to make them worth growing; for, judging from what is usually to be observed, they make about as much growth in one year on the Pereskia, as they do in six on their own roots. I know of nothing more tractable and more thoroughly useful in the gardener's hands than a batch of these exquisitely colored and profuse flowering winter Cacti. When grown to a large size and well flowered, no "stove or greenhouse plant" surpasses them in beauty or in symmetry; but the Epiphyllums assume a most graceful outline without any training or trouble, and instead of going back when they arrive at "a certain age," like the usual run of specimen plants, they go on improving from year to year with very ordinary cultivation indeed. Established plants will flourish away, without potting. for three or four years at a time, requiring only to be watered moderately, and if they be top-heavy from free development of branchlets, to be firmly staked—which latter is best done with a few iron stakes, supporting a strong wire ring or two, concealed under the drooping mass of shoots. This, of course, applies to large plants.

As regards temperature, the most suitable is that of an intermediate house or warm Vinery. The best plants I have ever had to do with were in a stove Vinery, *i. e.*, a stove with Vines overhead, and where they were, of course, pretty effectually shaded during the summer months. But they are not fastidious, and will flourish in any warmish house, provided they be on the Pereskia. They may be worked on this at any height that may be desired. When young, and as small standards on clean little slim stems, they are unsurpassed for table decoration, naturally assuming a parasol-like outline so often sought in such plants; indeed they seem specially calculated for table decoration. It is astonishing how quickly nice plants may be grown from grafts. The other day I saw at Mr. Barnes' nursery neat batches of symmetrical plants, from twelve to eighteen inches across, just opening into flower, that were only grafted about this day twelvemonth. They were grown on rapidly, and shifted into thirty-two's during the first summer of their existence, and in those thirty-two pots they will remain for several years without requiring a shift, and be just the very things for setting off a table.

The Poinsettia is our great gun at this season of the year, and everybody takes some pains to have it nice, but it is quite inferior to Epiphyllum. By the way, it should be noticed that these last are often kept too cool, and that intermediate or stove temperature is that in which they best flourish. I would recommend that no one should be satisfied with E. truncatum alone, but should grow along with it the charmingly colored varieties Bridgesii, violaceum, spectabile majus, &c., and in fact any other variety that may be met with, for a diversity of color among these Epiphyllums very much enhances their value.—VERTUMNUS, in *Gard. Chron.*

SKELETONIZING LEAVES.—The following plan is by Dr. Dickson, of Edinburg:—

A solution of caustic soda is made by dissolving 3 ozs. of carbonate of soda (washing soda) in 40 ozs. (2 pints) of boiling water, and adding 1½ oz. of quick lime, previously slacked; boil for 10 minutes, decant the clear solution and bring it to the boil. During ebullition add the leaves; boil briskly for some time, say an hour, occasionally adding hot water to supply the place of that lost by evaporation. Take out a leaf and put into a vessel of water, rub it between the fingers under the water. If the epidermis and parenchyma separate easily, the rest of the leaves may be removed from the solution and treated in the same way, but if not, then the boiling must be continued for some time longer. To bleach the skeletons, mix about a drachm of chloride of lime with a pint of water, adding sufficient acetic acid to liberate the chlorine. Steep the leaves in this till they are whitened (about ten minutes,) taking care not to let them stay in too long, otherwise they are apt to become brittle. Put them into clean water and float them out on pieces of paper. Lastly, remove them from the paper before they are quite dry, and place them in a book or botanical press.

SOLANUM CAPSICASTRUM.—As even small plants of this bear berries freely, the following hints as to its cultivation may be worth attention: If good-sized specimens are wanted in a comparatively short time, let the young plants be introduced into warmth early in spring, and as soon as they have started freely into growth shift them into larger-sized pots.

When potted, place them again in heat, giving little water for a time; but syringe overhead occasionally, in order to keep the atmosphere moist. After that, water with water of the same temperature as that of the house in which they are growing. They will now succeed perfectly well under the kind of treatment usually given to plants in a growing state, paying attention to stopping all straggling shoots, so as to induce a compact pyramidal habit. For ordinary purposes six-inch pots are large enough. About the end of June they should be placed out of doors, in as hot and sunny a situation as possible, when they will keep flowering and set fruit better than they would indoors. In September let them be moved under glass, where, when covered with brilliant orange-scarlet berries, they are extremely ornamental. Indeed few plants can be compared with this for winter decoration, and what is important, the berries are so permanent that the bushes bearing them retain their vivid coloring for several months at a time. The soil most suitable for this Solanum is a light fibry loam intermixed with a little peat and sand.

The Pleasure of Small Gardens.—To see clearly, we have all first to get rid of our prejudices; in fact, try for a season to forget what we know; and I am quite sure for a gardener of the present day, who is expected to make either a south wall or a flued wall successful, this is especially needful. He must be able to forget and cease to sigh after the grand houses in the nobleman's garden where he went as an improver, before his mind will be open to believe that without all the costly appliances now considered necessary, good fruit can be grown at its usual season, and bring himself to take the pains required. Is it not written, "Man shall earn his bread by the sweat of his brow?" which means, I believe, by labor assisted by steady thoughtful care, nay, even anxious care; for who has not felt the cold moisture start on his forehead as he hurried, fearing his forgetfulness had ruined all his hopes? Then why should it be considered, as it undoubtedly is, beneath a gardener to waste his time in growing fruit if his master does not supply him with a house so replete with appliances, that the fruit produced will cost a fabulous sum per pound? This cost of production is quite lost sight of, and the simple means that enabled the last generation to produce good crops are neglected, in order that the time and attention may be devoted to what is properly out of season. I mean, that if gardeners understood the capabilities of the houses under their care, they would, by forcing, have had these crops out of hand, and thus been able to devote their time and attention to the walls. Gardening should be looked upon as a business, and gardens worked for a profit, and then they will be carried on with economy and spirit, which bring with them a certain amount of anxiety, without which no business is healthy.

From whence come the fine Pears? The answer is ready—from France; but this does not explain my meaning. To what system do we owe their production? Those who have not travelled much, or resided for a time in France, have very little idea of the number of gentlemen with small incomes, who think they would lose their claim to be considered gentlemen if they went into trade; but, fortunately for them, selling the produce of the farm and the garden is not considered as being in trade; and what better way of lengthening out a small income than by means of a good kitchen garden? So these educated men give their minds to the subject, and not only make it pay, but find in it a healthy, pleasurable occupation. Was it not Sir John Paxton who said "That gardening was the only hobby he knew which, if carried to excess, did no harm?"

In this country, gentlemen consider their own time of too much value to devote it to the study of gardening, and look upon it as something beneath a gentleman; it is therefore left to the gardener, and he is often only intent on beating his neighbors at the autumn show, and never thinks that the summer is precious time, which should be economized by having previously done all that he could. He, poor fellow, has no hope that extra produce from the garden will improve his position, and as all things act and re-act, it ends in his being looked upon as one of the expenses of housekeeping that must be, and he finds, accordingly, that his trade is one of the worst paid.—*Cottage Gardener.*

Hybrid Blackberries.—The Rev. M. J. Berkeley offered a few remarks on the different subjects exhibited. Attention was first directed to a variety of Bramble which was shown at the last meeting by Mr. Bateman. It is nearly allied to our common Raspberry (Rubus Idæus,) and is clearly a form of Rubus strigosus. R. occidentalis, and cuneifolius are the other nearly allied species, which have leaves white on the under side. Fruit of the Lawton Blackberry was shown by the Rev. A. Rawson, of Bromley. It is large and fine looking, and would probably be valuable for culinary purposes. In Canada and the United States, the summer of which is hotter than that of England, it is held in high repute, as are also other kinds of

Blackberry, which find little favor with us as far as their fruit is concerned. It was stated that Mr. Rivers had been making some experiments, with the view of improving the fruit of our Blackberries, and that from some of his plants, procured by judicious cross-breeding, and now in the Garden of the Society, it was hoped that a dish of fruit would be shown at the Society's next meeting. Blackberry Jelly, it was said, was wont to be prescribed by a physician in Northamptonshire for gout, and it was stated that what remedial power it possessed doubtless depended on the small quantity of citrate of potash which the berries contain, and which is well known to be one of the medicines usually given for the cure of that disease. Rubus Circondianus, raised from seeds stated to have been imported from the Amoor River, Mr. Berkeley pronounced to be R. reflexus of Ker, a species figured in the "Botanical Register" as far back as 1820."

The Hybridization of Ferns.—We recently gave, in answer to a correspondent, some facts about hybrid ferns from memory. We have since met with the following paper which may interest our readers. It will be seen that Mr. Stelzner does not render the credit to Nœgali and other earlier discoverers we have named, which is their due:

"One of the most interesting of gardening occupations, if not the most interesting of all, is indisputably the fertilization of plants with a view to change the character of species, or to obtain new forms or hybrids.

While we watch with a lively interest the progress of plants which have been fertilised one with the other—a process which in Phænogams is perfectly clear to us, because their organs, whether large or small, can always be distinctly seen; we are, nevertheless, still in darkness as to the fecundation of ferns, and the mode in which it is effected.

The profound and interesting investigations of Munter, Lechinsky, Wigand, Schacht, and others have established the existence in ferns of reproductive organs of both sexes (antheridia and archegonia), which are borne upon the under side of the pro-embryo (prothallium)—that is, the foliaceous body which results from the germination of the spore. In conformity with these investigations, which would give to the pro-embryos, so to speak, the character of flowers, most physiologists are of the opinion that the artificial fertilization of ferns would only take place when the pro-embryos of two distinct species were brought into close contact. The opinion that fertilization might be effected on the frond at the time of the spores being formed (and this would be analogous to what takes place in Phænogams, and would appear to me more in accordance with the laws of nature), has up to the present time found scarcely an adherent, although, from what I have understood, Schacht in his latter days declared himself in favor of this theory.

The above opinion was expressed about ten years ago in "Bonplandia," I believe, by my friend Mons. F. Stange, of Hamburgh, but with the details of the article in question I am not acquainted. The experiments which I have made on the hybridization of ferns link together, perhaps, the two theories, without admitting either to its full extent. I am inclined to believe that a kind of fecundation takes place at the very moment at which the spores commence to germinate, and when the gelatinous mass of the different spores commingles, and becomes mutually transformed long before a pro-embryo has been produced. My principal reason for doubting the fecundation of pro-embryos is the fact that a large number of hybrids are frequently found together side by side. Contact between the pro-embryos, therefore, could not have taken place, and it also appears to me that we likewise cannot admit that all these hybrids could have been produced by the mutual opening of the reproductive organs, which takes place as if at a bound. I have my doubts as to fertilization having taken place on the fronds, because I have obtained hybrids from species which have not been in contact with others of their kind, as I shall now proceed to show.

Some years ago I reported in "Wochenschrift," published at Berlin, (1859, page 183), that I obtained a new and interesting hybrid. Gymnogramma between G. chrysophylla and G. lanata. Professors Koch, of Berlin, and Reichenbach, of Leipsic, did me the honor of naming it G. Stelzneriana. All the plants of it which I have raised had this peculiarity—namely, that nowhere did they produce spores, although they were in the hands of the most experienced English and German cultivators. I even grew some specimens myself with fronds 3 feet in length, but they did not produce spores, and I believe that the plants which I raised at the above period have now everywhere disappeared. Three years ago I again succeeded in obtaining the same hybrid by sowing Gymogramma chrysophylla and G. lanata in the following manner: I collected on a piece of white paper the spores of the two; and after mixing them as much as possible, sowed them together. In this way I succeeded in obtaining a good proportion of Gymnogramma

Stelzneriana, which nevertheless exhibited two different characters. Some individuals were in every respect like those obtained in 1859, the under side of the fronds being covered with golden dust, and the young fronds slightly crested at their extremities; whilst the others had narrower, more hairy fronds of less size, and not so powdery. The most singular part of the affair was that all the plants of each character after less than a year's cultivation yielded perfect spores, which on being sown reproduced the varieties, and their fronds are three times the size of those of their parents. I also made experiments with Gymnogramma gracilis, pulverulenta, argyrophylla, L'Herminieri, and Laucheana, sown indiscriminately together.

The spores of Gymnogramma gracilis were those of a plant which I had grown some ten years, when that fern was quite new, and it was isolated not merely from every other Gymnogramma, but also from every other fern, for it was the only one in the house; the spores of the other species came from plants which had never been in any way in contact either with Gymnogramma gracilis or G. tartera. The results were as follows.—

Gymnogramma pulverulenta sulphurea.—Both sorts of the fronds were covered with pale yellow dust. I only obtained three plants, which I unfortunately lost in winter.

G. gracilis hybrida, intermediate between G. gracilis and G. lanata, and resembling G. tartera. Some of the plants are densely covered with a bright silvery dust, others with a yellowish white dust, and in others again it is altogether wanting. All are covered at the base of the fronds with a dense brown down more or less deep in color.

G. gracilis elegantissima, with very finely cut fronds, densely covered on both sides, with a yellowish-white powder.

G. gracilis superba, the most ornamental and valuable of all. The fronds, which curve very gracefully, are not nearly so finely cut as in the preceding, but are broad, of a bright glossy green, with a metallic lustre on the upper surface, and covered beneath with a very thick coating of yellowish-white powder. This is one of the hardiest of all Gymnogrammas.

G. hybrida davallicefolia, the result of a fertilization of G. L'Herminieri. Its merits consist in the number and fineness of its pinnules, forcibly reminding one of some graceful Davallia; its fructification is also very ornamental.

Gymnogrammas are readily crossed, but up to the present time other genera have not produced hybrids. I have, it is true, obtained some variations of form, such as Davallia tenuifolia stricta, a tufty variety of D. tenuifolia, and Pteris aspericaulis from the seeds of Pteris tricolor, which may, perhaps, tend to prove that the latter is only a hybrid or variety of Pteris aspericaulis, and all the more because it is absolutely the same as the latter in its mode of growth. These forms remind one of the hardy ferns, most of which are so interesting and ornamental, and of which the spores always reproduce the same forms, as I found some years years ago by experiment on Athryrium Filix-fœmina Frizelliæ, and again more recently in the case of Osmunda regalis cristata.

Did the last-mentioned forms also result from fecundation? I do not think so, because there are plants, though comparatively few in number, which return to the type after having preserved for a whole year the character of a particular form of the type. Experience has taught me, as it has many others, that the pro-embryos can be preserved as long as the plants themselves, and that they can be divided and thus serve for propagation where the number of plants obtained is small. All that is necessary to be done is to cut off the young plants with a very sharp knife, always taking care to preserve the pro-embryos. It is more particularly to those of tree and other very large ferns that this mode of proceeding applies. My experiments have likewise taught me that a high temperature hastens and is favorable to the germination of the spores, and their hybridization. I always give a sufficient degree of heat to kill every Phænogamous plant.

As a nurseryman, my experiments have naturally been limited, only extending to the most ornamental species sought after in commerce; and for the same reason I could not afford the time and the appliances necessary to attain a definite result, if such were possible. It is the part of practical gardeners to perform horticultural labors with intelligence, and to observe the facts and appearances which serve to guide men of science in profound and intricate investigations..—A. Stelzner, (*Bulletin de Congres International de Botanique et d' Horticulture d' Amsterdam.*)

Renovating Sickly Grapes.—Muscat grapes apparently beyond recovery, and in a border permanently wet, were saved by a whole measure, consisting in the making of a new border on the top of the old one, and then planting on the new border Black Hamburghs to serve as healthy feeders to the Muscats. "As soon as these got of sufficient strength to admit of it," says Mr. Clarke, "they

were inarched to the stems of the Muscats, and when I saw them, the crop of fruit was then actually receiving its supply of sustenance *from the roots of both.*" We do not say that such a thing has not been done before, for many of our readers can cite examples of vines doing well with two sets of roots. Mr. M Elroy, of Stamford Hill, has done the same thing, and it might indeed prove a means of curing the shyness or bad ripening qualities of some choice varieties. But there is originality and ingenuity in adopting this means of raising vines out of a quagmire, for that in effect is the result of the operation, and one of the merits of the plan is that it is carried out on the same border as that which brought the original vines to ruin.—*Gardeners' Weekly.*

Carnation and Picotees.—These are apt occasionally to have small portions of soil lodge in the axils of the leaves. These must be carefully removed, for should they be damp and wet, serious injury to the plants will most certainly be the result. Carnations and Picotees, too, if kept close, will contract mouldiness, being liable to the attacks of parasitical Fungi. The leaves affected must be cut away; and, if possible, the affected plants removed from the others, giving plenty of air, the want of which, and late planting, superinduce these evils.

The Best Roses Last Year in London, were: Mr. Cant's First Prize Twenty-four (three trusses): Madame Julie Daran, La Brillante, Madame Charles Wood, William Griffith, Devoniensis, Dr. Andre, Pierre Notting, Mrs. Rivers, John Hopper, Beauty of Waltham, Charles Lefebvre, Souvenir d'un Ami, Victor Verdier, Senateur Vaisse, Prince Camille de Rohan, Madame Vidot, Marie Baumann, (a fine rose in the way of Laurent Descours), Comtesse de Paris, Madame Victor Verdier, Solfaterre, Lælia, Charles Margottin, (a thumping rose, rather flat, like Lord Raglan, but better), Maurice Bernardin, Comtesse de Chabrillant.

Protection of Trees from Insects.—The following simple method of preserving fruit from the ravages of insects is recommended by the Imperial Society of Practical Horticulture of the Rhone, and by the director of the School of Arboriculture of the Parc de la Fête d'Or, at Lyons. The quantity of fruit destroyed by insects that deposit their eggs in the blossoms is enormous. These creatures are said to have a great antipathy to vinegar, the mere odor of which is enough to drive them away, and, in some cases, to destroy them, and nothing more is required than to sprinkle the branches with a mixture of vinegar and water at the moment the blossoms begin to appear. The mixture recommended consists of one part of vinegar to nine parts of water, but as French vinegar is very strong, perhaps the amount of water should be less when English vinegar is used. When the liquids are well mixed, the solution is to be sprinkled over the flower-buds by means of a garden engine or syringe, or even with a watering pot with a fine rose. M. Denis, the director of the school referred to, tried the experiment last year, and reports that fruit trees so treated were covered with fruit, while those to which the acidulated water was not applied bore scarcely any. The other remedy proposed is against ants and other insects which mount the stems of trees. Take common lamp-oil, and expose it in the sun for three or four days, or until it acquires a gummy consistency and very disagreeable smell, then with a small paint brush paint around the tree at about two feet from the ground, a band of the oil two inches wide, repeating the operation for three or four successive days. *It is said* that this method will protect the tree for four years at least. Perhaps coal tar might be found to answer the same purpose; and *perhaps* the trees dressed with oil may die.

Double-Flowering Zonale Geraniums.—"The varieties of Pelargonium of the inquinans and zonal sections—we beg pardon of those of our friends who *will* think the word Geranium so much better for these races, though it isn't true—these Pelargoniums, we say, possess a new source of interest, now that it has been found that they will yield us good double flowers. So it is argued by M. Emile Chate, in a recent number of *L'Horticulteur Francais*, from which we glean some of the annexed particulars.

The first Pelargonium with perfectly double flowers, was raised, he observes, in 1859, by M. Martial de Chanflourd, of Clermont Ferrand, a distinguished amateur, after whom it is named, and who had already in 1855, obtained the variety known under the name of Auguste Ferrier. This latter variety had remained for nearly ten years in the garden in Clermont without its merit being appreciated. In Auguste Ferrier, however, the doubling is not so fully developed as in Martial de Chanflourd, but the coloring is more brilliant; and as it produces good seeds, it has become the parent of numerous varieties, of which Martial de Chanflourd

is one. The Triomphe de Gergovia, supposed to be a new acquisition, proved to be nothing more than Auguste Ferrier, with the name altered.

Since the appearence of the foregoing sorts, continues M. Chate, M. Louis Van Houtte has introduced a new kind (Ranunculiflora plenissima), similar at first sight to Martial de Chanflourd, but presenting appreciable differences—the flowers being more abundant, the color paler, and the shape more perfect. N. Lemoine has also obtained a new double variety, Gloire de Nancy, which in M .Chaté's opinion surpasses all that have preceded it. In this, which was the result of crossing Martial de Chanflourd with Beauté du Suresne, the flowers are full and well formed, though not more abundant than in other sorts.

From the variegated Auguste Ferrier, which flowers luxuriantly, and yields good seeds, M. Chaté has obtained a plant with flowers of a fresh pink color, in which, though the doubling is not considerable, it is expected that the seeds will be numerous, and that their produce will yield novel and interesting results. An impulse has been given, and it only remains that it should be as energetically followed up. This done, we shall no doubt in a few years possess Pelargoniums with double flowers, the plants as auriferous, and the colors as varied as in the single varieties. We may add that Gloire de Nancy was shown in fine condition at the Royal Botanic Society's show last Wednesday, and that its head of flowers, bears much resemblance to those of the double scarlet Lychnis."—*Gard. Chronicle.*

Pterocarya caucasica.—As this tree is comparatively rare and probably few will answer "W. M. E.'s" query (p. 1201), I hasten to state the little I know upon the subject. I only know one other plant besides the one at Cambridge, and that is a mere bush in a gentleman's garden at Bury St. Edmund's. It would not be wise to generalize from such limited experience, but the tree seems to me but little adapted for forming an avenue; and for such an object could not for one moment compete with Ailantus glandulosus, which it much resembles, the Ailantus being by far the nobler tree of the two. A full account of the Pterocarya will be found in "Loudon's Arboretum." Reference is there made to large plants of it at Croome, in Worcestershire, and at Versailles, where it flowers every year. It is described as forming a broard-spreading tree, about 30 feet high, and although affected by frost, is sufficiently hardy to be classed among ornamental trees of the third rank. It is readily increased by layers. Care should be taken to train it to a single stem, and also to plant it on poor soil to ensure its wood ripening. Mr. Loudon also recommends its being worked on the common Walnut, either at the collar to form dwarf bushes, or standard high for trees, as probably inducing greater hardiness. If used for avenues this would be the best mode of proceeding, and so treated it would have a striking and novel appearance.—A Practical Hand, in *Gard. Chronicle.*

Lilium testaceum.—This fine Lily, the L. excelsum of some catalogues, is now pretty common in gardens, but I do not think it is generally known that so far from being a native of Japan, as some authors and most trade lists inform us, there are good reasons for believing it to be a hybrid. This much is certain: Dr. Von Siebold never met with the plant in Japan; whether more recent collectors have done so would be an interesting inquiry. It appears to have been first brought into general cultivation by Mr. F. A. Haage, of Erfurt, who states that it was detected byhim in a batch of MartagonLilies received from Holland though oddly enough the Dutch and Belgian nurserymen knew nothing of the plant, and were among the first and most eager to purchase stock. The Haarlem growers regarded it as a degenerate variety of the Martagon Lily. Mr. Haage himself believed it to be a hybrid between the common White Lily and the L. croceum, but the opinion of M. Spae, author of a "Memoire sur les Especes du Genre Lis," that its parents are the L. candidum and L. chalcedonicum, is far more likely to be correct. Though it does not develop its radical foliage in autumn, like the White Lily, it is one of the earliest to throw up its stem in spring; further it has much of the habit of the L. candidum, as well as its fragrance; while the influence of the pollen of L. chalcedonicum is clearly shown in its pendent flowers with their half-reflexed segments, as well as in the chamois or buff color, naturally resulting from the admixture of its vermilion with the virginal white of the L. candidum. Moreover, the white downy margin distinguishing the foliage of the male parent is eqally present in the hybrid plant in a modified degree; and it is worthy of remark that the L. testaceum never ripens perfect seed which in itself is a strong proof of its hybrid origin.—W. T., in *Gardener's Chronicle.*

Potting Strawberries for Forcing.—For runners of the present year we prefer pots 4½ inches in diameter, well drained, and filled with rich turfy loam beaten firm, and the runners are laid in these in July. We detach the runners from the parent plants in September, keeping off all runners prior to

and after this, and place the pots, in double lines, on boards 1 foot from a south wall. These are for the early forcing to give fruit in March. Our second lot is prepared in the same manner, only we use six-inch pots because we employ larger kinds of strawberries. All after the first and second lots are fruited in six and seven-inch pots. We never pot or plant after September, and place them first in small pots for the successional crops, thence transferring them into fruiting pots as soon as the small pots are filled with roots. We presume your plants are as yet unpotted. The pots we should use would be 6 inches in diameter, and we take up with balls, and pot firmly. A bed of leaves about 18 inches high being made, a gentle heat would rise; in this bed we would plunge the pots about half their depth which would excite a speedy root action, and the materials becoming cold in ten days or a fortnight, a frame and lights might be placed over the plants to protect them from wet and severe weather.—They will require to be started in January to fruit by the first of April.—*Cottage Gardener.*

Effect of Locality on Form of Plants.—Dr. J. E. Gray mentions, in the *Journal of Botany*, that in Pembrokeshire, especially near Broadhaven, the prevailing color of the Primrose is pale lilac, and specimens of this and of the "Primrose" colored varieties may be found growing on the same stone wall (stone walls in this district taking the place of hedges), sometimes so close together that they appear to grow from the same root. As other examples of two forms of one plant growing under the same conditions, he further mentions a purple Anemone, which he has found intermingled with the white one in the same tuft; a beautiful pink variety of Wood Sorrel growing amidst the usual white form; and a rose-colored form of Lamium album, in the midst of beds of the usual color.

The Grass-tree.—Few who have traveled any in Victoria but have met with the grass-tree (Xanthanorea,) which is to be found in nearly all parts of Australia. Up to a few months ago it was supposed only to be a useless growth, encumbering the land. A few knew from the blacks that it contained a very tenacious gum—the blacks used it as a glue for joining parts of their weapons; but it is only within the last few months that the following valuable articles have been obtained, after great labor and expense, by a Mr. Dodd. St. Ronan's, the place where Mr. Dodd has erected his works to carry on the experiments, is situated about 18 miles in a southerly direction from Colac, and here for some months past experiments have been carried on in connection with the grass-tree. The root is the portion used in the experiments, and usually weighs from 10 lbs. to 50 lbs. The root is composed of the stems growing in a close mass around the inner portion of the kernel. From the outer portion of the root gum-shellac in large quanities is obtainable; the refuse contains a large quantity of gas, and can be made available for lighting the works. From the inner portion is extracted, by pressing or distilling, a spirit equal to the best brandy, also alcohol; after distilling, a quantity of saccharine matter remains, from which sugar can be extracted. The present supply of grass tree in the neighborhood of St. Ronan's is computed to be equal to a supply of 600 tons per week for the next ten years. Great quantities of young grass-tree abound.

Horticultural Notices.

PENNSYLVANIA HORT. SOCIETY.

The regular meeting of this society was held on Tuesday evening the 15 inst., at their rooms in Walnut street, President D, Rodney King in the Chair.

Committee on Flowers and Plants awarded premiums to Charles Fox, gardr. to J. V. Merrick, for Basket cut Flowers. John Dick, for pair Hand Bouquet. John Whelan, gardr. to W. Adamson, for 6 primroses. D. McQueen, for Parlor Fern ease, Hanging Basket, Table Design, Basket of Cut Flowers, pair Hand Bouquets. Geo. Huster, gardr. to A. Cummings, for Basket of Cut Flowers.

Mr. King, at the opening of the business meeting, made the annual addrees, reviewing the course and progress of the Society during the past two years in which he has acted as President. The prominent point of interest was the subject of the new hall, of which the Directors are Charles P. Hayes, Henry A. Dreer, Benj. Bullock, Chas. Harmer, Thomas P. James, James Ritchie, Peter Mackenzie, Wm. L. Schaffer, D. R. King, and J. Eastburn Mitchell.

The Board is organized thus: W. L. Schaffer, President; H. A. Dreer, Treasurer, and A. W. Harrison, Secretary.

The Hall will be completed next May, and will be opened for the annual exhibition of the society.

Mr. Lorin Blodget, United States General Appraiser, made an interesting address upon the subject of California wines, their value, and the deception practiced concerning them.

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THOMAS MEEHAN, Editor.
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Hints for March.



FLOWER-GARDEN AND PLEASURE-GROUND.

No one can better realize the "Pleasures of Hope" than the Horticulturist. At this season more than any other, do we find ourselves at "Castle Building," having magnificent visions of what fine things we shall do when the gardening season comes again to us. Visions which we are sorry to say are too often not realized. We are so prone to wish for more than we can have, and to lay out more than we can do, that if we do not get what we expect, we have at least extra pleasure in the anticipation.

And here, in our cosy study, with Snow and Cedar birds, thoughtfully and silently moving about through the evergreens at the window, as if they wondered from whence the morrow's meal should come; and the snow fields driven into Sea-shore furrows by the northwest winds while the sleigh bells all around tell of warm hearts and merry lives; even among the most dreary days, we sit and wonder what we can say for the month to come; one short month, when all this scene shall be changed, when the blue bird and robin shall be merrily chirping where now the Snow-bird looks so dull, and Snow-drops Crocuses and other spring flowers, shall call us to new duties and new delights.

And now, as to "Hints for March," we may say that planting trees will require particular attention now; but do not be in a hurry the moment the frost is out of the ground. Cold winds are very hard on newly set out trees. Wait till they are gone. Always shorten in a little the shoots of all trees planted. They will grow the faster for it, and are more certain to live. Evergreens should be left to the last.

Walks should now have their spring-dressing—the verges cut, and a thin coating of new gravel laid on. Before putting on the new, harrow up the face of the old gravel with a strong iron-toothed rake. Roll well after the new is laid on.

This is the proper season to lay down box-edgings. To make them properly, the soil along the line of the edge should be first dug, and then trod very hard and firm, so that the soil may sink evenly together, or the line will present ugly-looking undulations in time. Rooted plants should be employed; cuttings are sometime used, but frequently die out in patches; a good edge can rarely be made from them. The plants should be set pretty low down, leaving the plants, when set, one or two inches above the soil, according to their stockiness. Sometimes box edgings are laid around beds formed in grass. When so, a few inches of clear ground should be kept clean between the grass and the box, or the weeds will be so intermixed with the box, after awhile, as to render it a nuisance.

This is particularly the month to pay attention to the hardy annuals. The sooner they are sown, the finer they will flower; that is, provided they are really hardy. Tender annuals, such as Globe amaranthus, Balsams, &c., rot if they are sown before the weather becomes quite warm. The seedsmen's catalogues usually distinguish these classes for their customers. In sowing annuals, the soil should be slightly stirred with a broad-bladed knife or trowel; and after the seeds are sown, they should have a little soil sprinkled over them, about one-sixth of an inch deep, according to the size of the seeds; barely enough to cover is all that is required. Failures usually arise from the seeds being buried too deeply. Failures also frequently occur from the soil with which the seeds are covered being too stiff or clayey, "baking" after a rain. Light sandy earth, or decayed vegetable loam from the woods should be employed for the purpose. Stick a peg in where the seeds are sown, so that when turning out the plants in

May from pots, the annuals will not be disturbed. Also take care to preserve the names of the kinds. This is a great part of the interest in a flower-garden.

Herbaceous plants do badly if several years in one place. Every second year, at this season, take up and divide them. Sow as soon as possible some hardy annuals. The earlier they are in the ground after the frost leaves it, the finer they bloom.

Ornamental hedges judiciously introduced into a small place, add greatly to its interest. No easier method offers whereby to make two acres of garden out of one in the surveyor's draught. The Arbor-vitæ, (Chinese and American), Hemlock, Holly, Beech, Hornbeam, Pyrus japonica, Privet, and Buckthorn may be applied to this purpose.

Shrubs are not near enough employed in planting small places. By a judicious selection, a place may be had in a blooming state all the year; and they, besides, give it a greater interest by their variety, than is obtained by the too frequent error of filling it up with but two or three forest trees of gigantic growth. Plant thickly at first, to give the place a finished appearance, and thin out as they grow older. Masses of shrubs have a fine effect on a small place. The centre of such masses should be filled with evergreen shrubs, to prevent a naked appearance in the winter season.

Many things that appear frosted a little at the tops should be severely cut down; it will prevent disappointment in the end. Shoots that are injured in winter—especially in the case of the rose—will often have just sufficient vigor left to enable them to put forth leaves, and sometimes even go so far as to attempt to flower, and then die off suddenly under the first hot sun.

FRUIT GARDEN.

There is no more difficult question to answer than what varieties of fruit to plant. Every progressive Horticulturist likes to add for trial every new variety that may probably prove of value, but new beginners do not wish to experiment, but to commence with what has been proven to be good. Were we just about to plant for the first time, and wish to select six, each of different fruits, they would be the following, as having been tried in most parts of the United States, and *generally* been found to do well in all, although there are some of them that have not been found to do as well as some others in some specified localities:

Grapes. — Concord, Diana, Delaware, Clinton, Hartford Prolific, Rogers No 4.

Currants.—Red Dutch, White Dutch, Versailles, Black Naples, May's Victoria and Cherry.

Raspberries.— Philadelphia, Brincklé's Orange, Hornet, Belle de Fontenay, Catawissa, Franconia.

Apples for Dwarf.—Gravenstein, Red Astrachan, Lady Apple, Fameuse, Fall Pippin, Summer Bough.

Standard Apples.—King of Tompkins Co, Porter, Baldwin, Smith's Cider, Rhode Island Greening, Summer Hagloe.

Pears for Dwarf.—Louise Bonne de Jersey, Belle Lucratif, Beurre d'Anjou, Beurre Superfin, Duchesse d'Angouleme, Rostiezer.

Standard.—Bartlett, Seckel, Sheldon, Lawrence, Buffam, Beurre Clairgeau.

Plums.—Jefferson, Washington, Richland, Old Green Gage, McLaughlin, Duane's Purple.

Cherries.—May Duke, Early Richmond, Black Tartarian, Belle de Choisy, Early Purple Guigne, Belle Magnifique.

Peaches.—Early York, Hale's Early, Old Mixon, Stump the World, Crawford's Late, Ward's Late.

Strawberries.—Wilson's Albany, Downer's Seedling, Triomphe de Gand, Green Prolific, French's Seedling, Russell's Prolific.

There are others perhaps quite as good as these, but we confine ourselves to six of each.

Grape-vines in the open air, on arbors and trellises, should have their pruning finished before warm spring days set in, or they will bleed. It does not injure them much, but it looks bad. The pruning must be regulated by the condition of the vine. If the vines are young and the shoots weak, cut them all back, to make a new and vigorous growth. If already a fair quantity of strong shoots of last season's growth exists, cut out the weaker ones, so as to leave enough of stronger ones. The cane system slightly modified, is best for arbors and trellises in the hands of amateurs generally. This implies a new set of canes every year or two. If, as frequently happens from bad management, all the young and strong-bearing wood exists only at the end of the vines,—and these latter have become nothing but long, ropy-looking apologies for what a vine should be; the whole cane may be buried down in the soil to where the strong shoots spring from, and the young wood of last season trained up from this. The plant will then recover its good appearance quite as well as by cutting down, with the advantage of not sacrificing a year's crop of fruit.

Many kinds of raspberries, especially in dry soils, have a tendency to throw up innumerable suckers. These should be thinned out. Three or four canes are enough to leave in a "hill." We like, however, to grow raspberries in rows, where each cane may have a chance to enjoy an independent existence of about a square foot of soil for itself.

We have before remarked that fruit trees and bushes should invariably be cut in severely, and not allowed to bear the same season of planting. It is a fatal mistake to look for fruit the same season of setting out the trees. This is at the expense of future growth, and without future growth there will be no future crops.

Raspberries, Blackberries, &c., frequently bear and die when so treated. The canes should be cut back to a few inches on transplanting. Raspberries for fruit in fall should always be pretty well cut back. It is not essential with the regular fall-bearing kinds, but it aids them much.

VEGETABLE GARDEN.

This is a busy season south of Pennsylvania in this department; here, we must wait till the end of the month, and northward, still later. The crops noted will, of course, be dependent on the arrival of the *season*, which is rather indicated by the ground becoming warm and dry, than by the almanac. It is very important to have crops early; as soon as the ground is therefore in good condition put in the seed. Possibly a cold rain might come and injure them, and you may lose and have to make a new sowing. Even so, it is but the loss of the seed and labor, while, if the seed do *not* die, the early crop will more than repay that risk.

In the hotbed, Pepper, Egg-plant, Tomato and Cucumbers may be sown,—and in a cooler hotbed frame, Early York Cabbage, Cauliflowers and Celery. Those who have not got a hotbed can sow a few pots or boxes, and keep them near the light in a warm room.

In the open air, Peas and Potatoes are about the first crop to be attended to; of the former, the varieties have now become so numerous that even "new grapes" will soon have to give way in that respect. Of new early Potatoes, we think Goodrich's Seedling is the best; the best older variety is perhaps the Early White Sprout. Beets, the Early Six Week Turnip-rooted, is perhaps the earliest. Carrot, the Early Horn. Cucumber, the Early White Spine or Early Cluster. Lettuce, the Silesian, or Early Curled—to cut before heading; and the Early Butter left to head, are the first in season. Among the Radishes, the Old Short-top, and the Red and White Turnip are still ahead. Spinach, the Old Round-leaved; so that on the whole there has been little advance made on early kinds of vegetables.

In addition to sowing of the above, Onions, Leeks, Parsnips and Parsley must be sown at this season—not for the main crop, but to have a few in advance of the rest. To keep over the winter almost all kinds of root crops become tough or coarse if sown to soon.

In the open ground Peas and Potatoes receive the first attention. Then Beets and Carrots.—Then Lettuce, Radish, Spinach, Onions, Leeks and Parsley. Beyond this, unless in more favored latitudes than Pennsylvania, little can be done until the first week in April. There is nothing gained in working soil until it has become warm and dry.

VINERIES AND ORCHARD HOUSES.

In the early houses, towards the end of the month, grapes will be about setting their fruit—one of the most critical periods of the course. Many excellent gardeners object to syringing at this period, but the experience of others, shows that it can be and is done, in some cases, with great advantage. The fact is, when a vine is perfectly healthy, a course of treatment that would be injurious under other circumstances, may be even advantageous to it, and so, treatment must, in a great measure, be regulated by the state of the vine. The roots must especially be maintained in a healthy state, which may be known by a free and vigorous pushing forth of strong fibres in every direction through the soil—and then these roots can only be continued healthy by carefully protecting the leaves from injury. The least injury to the leaves has a corresponding influence on the root. If, therefore, all sudden changes are avoided, either at the roots or about the foliage at the time of setting, so that the roots are allowed to progress without interruption, there will be little danger of grapes or any other fruit not setting.

While fruit trees are pushing forth their young growth, forcing houses can scarcely be kept too moist. As the wood hardens, the atmosphere must be kept gradually drier.

Above all, in forcing, *take care of the leaves*, and in all your operations let it be your first care to look after them. In pinching and stopping off vigorous shoots, the object should be to throw the sap's influence into the weaker shoots to make their leaves stronger and larger, so that the whole effort of the tree should be equalized—no shoot should be allowed to grow stronger than another, but should be taken out at once as soon as its ambitious tendency is discovered. The tubs or pots containing the trees should be frequently turned around, so that all parts of the tree may have equal advantages; "Liberty, Equality, and Fraternity," should be the watchword of their government, and every branch trained to do no injustice to its neighbor. Frequent potting or retubbing is of no material importance; manure

water and top dressings will do the work. We have had peaches, cherries and figs to remain many years in the same tubs, bearing fruit annually as freely as could be desired.

Grape vines from eyes may now be propagated. Cut the shoot immediately above an eye, and about one inch below. Mix them with slightly damp moss for a couple of days or so, and then insert up to the buds or eyes in sand with a bottom heat of 70°. Native grapes having harder wood may be retained in the moss for two weeks, when the wood will be softened sufficiently to strike root at once.

GREENHOUSE PLANTS, &C.

Geraniums, Pelargoniums, Cinerarias, and Chinese Primroses must be kept as near the glass and light as possible; they do little good in shady places. Keep off the green Aphis—for this on a small scale there is nothing like hot water; on a large scale, tobacco-smoke in several successive light doses is still the best remedy.

Fuchsias may now be readily struck from the young growth from the old plants, which will make excellent blooming plants for the next summer season.

Chrysanthemums should now be raised from cuttings for fall flowering. They make better blooming plants than off-sets.

Auriculas, Carnations, Pinks and Polyanthus—the prettiest of florist's flowers must be kept cool, just free from frost, with plenty of air if the best results are desired.

Pansies are coming now into flower. They like an airy frame, where they will not be roasted at mid-day nor exposed to drying winds, and yet have a free circulation of air and plenty of light. Planted out in such a frame, and the old shoots cut away as soon as the plant has done flowering, the plants will keep healthy over till the next season.

Superior varieties can be raised from seed. Choose those with the roundest petals, best colors, and the first flowers that open, to raise seed from.

New Holland and Cape plants, such as Epacris, Acacia, Heaths, etc., are now the glory of the greenhouse; hot bursts of sun on them should be avoided, as it lays in them the seeds of "consumption," which frequently carries them off the following summer.

Azaleas succeed well by grafting with the half ripe shoots of the present season's growth on plants raised either by seeds or cuttings. Old wood does not take readily.

Camellias will require rather more water while growing than at other times. Just before they grow is a good season to graft. Cut down the stock, cleft graft in the crown, wax, and plunge in a bottom heat of 70°. A great many kinds may be had on one plant by the bottle system, practiced by the writer's father, thirty years ago. A shoot about to grow is obtained and attached to the stock as in inarching, the end of the shoot being put in a small phial of water suspended beneath it. This plan does best, however, with the young wood in July.

Look out for a good stock of bedding plants in time; by striking cuttings of such things as grow rapidly and speedily, and sowing seeds of such annuals as may be advanced to advantage.

Dahlias should now be brought forward. A good plan is to shorten the extremity of the roots, put them in six inch pots and place in a warm greenhouse. In a few weeks they will sprout, when they should be shaken out, divided with a piece of root to each sprout and separately potted in 4-inch pots.

Communications.

GRAFTED ROSES.

BY MR. E. FRYER, GARDNER TO L. ELLSWORTH, ESQ., NAPERVILLE, ILLS.

I have read with much pleasure the communication of Orchis in the January number of the *Monthly* on Roses, and being myself for some years past extensively engaged in the propagation of Roses, Grapes, &c., thought I would pen some of my little experience.

Friend Orchis seems to think it somewhat objectionable to see Nurserymen so frequently advertise roses "on their own roots." I think they should, and probably all do, feel a very laudable pride in doing so. I regard it as an evidence of the advance of the propagating art, to be able to dispense with the abominable Manetti; which, for the purposes of propagating has been used principally because it facilitated the process. I have tried all methods of propagating the Rose, with a view to the production not only of the greatest quantity, but also of the best quality of plants, time and facilities considered. Think I have not hastily condemned the Manetti. Have used the stem for budding, and the root for grafting, but for the past two years have discontinued to use it as a stock in any shape; rooted up all the stumps old and young, piled them on a part of the land where young roses were to be planted, and set fire to the mass. In this way I found them the most useful. Orchis suggests as the best possible method of producing the best class of plants, to graft on the Manetti roots. Must I grow eight or ten thousand Manetti every year, to raise fifty or sixty thou-

sand roses? Every propagator has his favorite method; different methods are perhaps necessary in different sections of the country. In Georgia and Florida for instance, all that is necessary is to take a piece of ripened wood of any length, of the Moss, Provence, Damask, Hybrid Perpetual, or, in fact, any class of roses, put in the earth any time during winter and it roots and grows finely; but in our northern climate and soil, as every propagator knows, the same method with the same classes of roses would result in a complete failure. I claim nothing more than ordinary skill as a propagator, but think I can produce plants of any variety or class of roses, as healthy and as strong, by the method which Orchis condemns—that of green wood cuttings—as can possibly be produced by any other method, budding or grafting on the Manetti not excepted. The cuttings however are not struck in *summer*, for if done at that season, constitutional debility is certain to be propagated as well as the plants, but during the spring months only and from healthy plants, which are prepared in the following manner:

The plants intended for propagation are kept in pots at least a whole year before any cuttings are taken from them; the first spring they are slightly forced by being put in the greenhouse in March, plunged in saw-dust or tree leaves out of doors about the last week in May, which is as early as we can set plants out here on account of late frosts, they are not grown in very large pots, just sufficiently to insure a *healthy* without a *rampant* growth. Pots are occasionally turned during summer to prevent too much rooting in the earth beneath, never allowed to suffer for want of water during the growing season. In October the plants are all repotted while yet in full leaf, those that really need it, get a larger pot, but most of them are placed back in the same pots in which they have grown all summer.

The object being to give them fresh food of good quality more than to increase the quantity by a larger pot; a month later they are pruned and set in a cool greenhouse where they get no fire-heat till about the middle of December, and during that time very little water; about the first week in January, they commence growing; the last week in February they are ready to take cuttings from, and during all the month of March yield an immense crop, after which they are allowed to bloom; and all that are not sold at retail by the end of May are turned out of pots into the open ground and are not propagated from any more.

When in good growing condition the plants are liberally but not over watered, and get manure water once a week, the hot water pipes are kept sprinkled with sulphur which prevents the possibility of mildew, and the syringe is freely used lest the red spider would attempt an entrance. Two thousand plants are now on a broad stage in one of the houses I have charge of, that have been treated in the manner above described, they are at this time (Jany. 21st.) in full growth, and I think if friend Orchis could see them he would be convinced that they would not produce a delicate class of plants; two thousand more are ready to be removed from the cellar to the greenhouse the first of March, but these also have been kept in pots all last summer and will therefore be in a condition to yield a large number of cuttings during the month of April.

Cuttings are not taken off until the shoots have acquired some degree of maturity or near the time of flowering, when they are in the best condition. In propagating new varieties or any kinds that are scarce, I take off a whole shoot and divide it into single eyes, every eye in this way producing a plant with the most unerring certainty. This method is new so far as I know, for I have never seen or heard of its being practiced by any one else. I do not however, seek a patent for the discovery, but give it to the *Monthly* for the benefit of all interested in rose culture. I found it out by trying experiments in striking various Greenhouse and other plants from leaves only, the rose yielded to my inquiries and wishes in the most satisfactory manner, and the rapidity with which new and valuable varieties can be propagated in this way is truly marvellous. Varieties however that are not scarce, I take off in the usual way—a young shoot with a heel, set them in a bed of sand three inches deep over a tank of water, heated by one of Hitchings' No. 4 boilers.

There is no rose with which I am acquainted, even the most stubborn of Mosses, but what will yield to this process and root readily, if cuttings are obtained early enough in the spring; but in order to obtain the cutting early it is necessary that the plants be raised in pots at least one season before being used for propagating. I know that plants are sometimes taken from the ground late in Fall and early in Spring, potted, and set in the greenhouses, and are propagated from the same season, but the comparatively few cuttings that are obtained, come rather late and never make as good plants as those grown early by a proper course of preparation.

Every propagator knows that the difficulty of striking most cuttings increases as the natural heat of the atmosphere increases towards the end of spring or beginning of summer.

Cuttings of roses are well rooted in from twenty to thirty days, according to the variety or class. I

take them out of the sand by putting a trowel under them and lifting them out, a row at a time, breaking the roots as little as possible, pot off in small pots. The first batch are placed on the side shelves of the propagating house, but the remainder are set in frames that have a slight bottom heat, and are planted out in the ground in June. By the end of the season they make plants that are large, strong and healthy as any that can be produced by budding or grafting on the Manetti which requires two years in the process of raising.

It is true that at the East there are some varieties that grow and flower better on the Manetti than on their own roots, but here on the rich soil of the Prairies we have no need of hitching on to such coarse company. Indeed I think it questionable whether a variety of rose is worth growing at all which cannot be grown on its own roots.

I make these remarks not in any spirit of combativeness so antagonistic to the peaceful, soul inspiring pursuit of Horticulture; but I hope in the spirit of fraternity, of which friend Orchis gives us such good example in the closing paragraph of his article referred to in this.. Like him I love the rose above all other flowers, delight in its culture and hope to see it more universally grown; would like to describe the peculiar beauties of some of the newer favorites, but this article is already to long. I have only made an humble effort to save from what I suppose an unmerited prejudice, a method of propagating the rose, than which, from practical experience I am convinced there cannot be better.

NOTICES OF SOME RARE EVERGREENS.

BY JOHN SHERWOOD, COLLEGE WHARF NURSERY, BELOW BRISTOL, PA.

According to promise, I send you a few remarks on the new and scarce Japanese Evergreens, all of which I have been cultivating for some time.

Thujopsis dolabrata.—Is a very curious species of Arborvitæ, being very symmetrical in its growth, having a single stem with a leading shoot. The whole plant, instead of leaves, is covered with scales of a dark green on the upper side, and the under of a snowy white. These scales cover the whole plant, from the trunks to the tips of the shoots, giving it a very singular and graceful appearance. I have found it perfectly hardy, standing out in an exposed place for several years without being the least hurt by frost. It is very easily propagated by cuttings, taken off in the fall, and put in bottom heat. These cuttings throw out a leader, and make handsome plants in a short time. There is a variety with branches variegated with white,—that is, very showy—planted in a rather shady place, it retains its various colors.

Taxus (or Cephalotaxus) *japonica*, I have found to be perfectly hardy in this locality. It is of a Fastigiata character, or, in form, resembling the Irish Yew, but of a much more robust growth; small plants, when planted out, making one foot to their growth in one season. Its upright limbs are strong and keep well together, never straggling; the leaves long, and the stems of a green, waxy appearance. It is propagated, and strikes very easy from cuttings in the same way as the above. The largest and finest specimen I have seen is at Princeton, N. J., where it has stood for a number of years.

Retinospora selaginelliodes, is a small tree with a flat head, resembling a bunch of fine moss, from which, I suppose, it takes its name. It has a very singular effect, very slow of growth, and very difficult to increase; does not strike from cuttings, only having one rooted cutting out of some hundreds. I have no doubt it can be increased by grafting on some stock of its own nature.

Sciodopitys verticellata, (or Umbrella Pine).—I have a plant of about 2 feet high. The ends of the branches are tufted, with long, dark green leaves, very unique, and different in appearance from any Evergreen I have ever seen. It is difficult to propagate, will not strike from cuttings, and will not graft on any Pine which I have tried. It is, evidently, very scarce, not having seen it anywhere, except the few seedling plants at your place.

Phyllocladis thyrsoides, is one of the most singular Evergreens I have ever seen: one part of the plant differing altogether from other parts. The leaves on some parts are triangular, armed with a sharp spine, and in pairs,—fleshy and strong; other branches with small, round, soft leaves, and in fact leaves of all shapes. In the Fall, the whole plant gets covered with globe-shaped flowers, pure white, of a waxy consistency and very fragrant. It is easy of cultivation, and strikes very freely from ripened cuttings in bottom heat. I am not sure whether it is a native of Japan or not. It is, however, a very interesting plant. I have not tried it out yet, but I think it is hardy, having stood very severe frost in a pit or frame.

This will be enough at one time; if it is of any use, I will send you a description of some other Evergreens, and their cultivation and management, &c.. at another time.

[Mr. Sherwood is, as is well known, one of the few Nurserymen who loves plants for their own sake as well as for "the money that may be in them." He could tell us much that we would all like to know if less modest than he is.—Ed.]

LILIES.

BY M. M. LEICHTLIN, CARLSRUHE, BADEN, GERMANY.

Vol. 8, No. 10 of your periodical contains an article about Lilies, by J. D. K., Washington, D. C., and as an amateur collector and grower of Lilies, of many years' standing, I beg leave to answer his queries about some kinds.

The largest number of flowers observed on a single bulb, but with a couple of stems of *Lilium auratum*, is about 25—30 each, measuring from 11—13 inches (English measure) in diameter. There are many superb varieties of that species.

L. Brownii is rather tender, but it is not the sharp frost that kills the root, but the wet and moisture in the Fall.

The cost of collecting American indigenous species is much greater than their low price in Europe, and so the bulbs are imported.

L. japonicum is the same or a synonym Brownii. This and *eximium*, and *Takesima* are each quite a different thing from *L. longiflorum*, *Takesima* being by far the finest of them.

Excelsum or *testaceum* is a hybrid between *candidum* and *chalcedonicum*.

Giganteum does well at Nizza and in some parts of Cornwall, but cannot withstand any sharp cold. *Aurantiacum* and *bulbiferum* are somewhat similar although distinct; but *colchicum* belongs to the Turk's cap shaped, the color being a clear, canary yellow, with some fine speckles of brownish-crimson and vermilion anthers.

"*Fen-kwam*," "*Kimi-gajo*" are mere varieties of *Thunbergianum*.

If J. D. K. thinks my communication to be of any use to him, I will be very glad to serve him, and might even send him any seeds or plants of mine.

I will thank you to communicate to him these few lines, either privately or through the columns of your valuable journal.

"SOMETHING TO DO."

BY J. S. L.

"What can't a woman do!" has expressed the surprise her exploits have awakened, while it indicated faith in her ability to do greater things. The inquiry is making, "What shall a woman do?', and while the bright minds of her sex are searching for 'something to do,' let me give you an illustration of what she has done, while I commend the example as especially worthy of imitation by all who have it in their power to exert themselves in the same field, to even the smallest degree.

Women who would effect any thing worthy must break away from fashion and its stupendous follies, assert their independence of soul, despise, or lament if more charitable, the weakness, if not wickedness, of the semi-barbarism of mediæval customs.

All truly noble women possess that mental greatness which can "look superior down" on the gowgaw and the child's play of fashionable society, as exhibited by the triflers of the hour,—the ephemeræ who flutter their little day in the sunshine of pleasure, guiltless of one sober thought or of one useful act.

How refreshing to turn from such shallow dawdlers to the delightful and useful labors of LADY ROLLE, as set forth in the pleasing pages of Elihu Burritt, himself an example of *what a man can do*, —as instructive to the idlers of fashion, yclept dandies—as is Lady Rolle to the sisters of the same ilk.

There are thousands and tens of thousands of acres of land in the United States, East and West, on which trees are needed, and on which they must ere long be planted, if we would not suffer the consequences of want of timber, increase of drought, agricultural loss, and general suffering through deterioration of climate. Let the ladies urge on the good work, either by taking it in hand themselves, or stimulating their brothers or husbands thereto. The energetic exercise of their faculties in this field, they will find neither effeminating as fashion, debilitating as indulgence in luxury, or demoralizing as the theatre or opera, but tending to enlarge the heart, and expand and strengthen the intellect, and adorn and ennoble existence, while it will furnish a perennial source of genuine enjoyment, which the giddiest pursuit of pleasure, in the rounds of folly and dissipation, can never afford.

BICTON AND LADY ROLLE, by Elihu Burritt.

"Lady Rolle is a remarkable woman, without equal or like in England, in one vigorous, well developed individuality of will and genius. She is a female rival of Alexander the Great. If Virgil had lived in her day he might have been tempted to substitute 'Arbores fœminamque cano' for his famous introductory line "Arma virumque cano." The world that the Grecian conqueror subjugated was a small affair in space, compared with the two hemispheres which this English lady has taken by the hair of the head and bound to her chair of state. It seems to have been her ambition, for nearly half a century, to do what was never before done by man or woman —in filling her great park and gardens with a collection of trees and shrubs, that should be to them what the British Museum is to the relics of antiquity and the literature of all ages. And whoever has traveled in different countries and climates, and vis-

its her arboretum, will admit that she has realized that ambition to the full.

Let the most scientific and enthusiastic American arboriculturist travel from the Rio Grande to the St. Lawrence, and from the Atlantic to the Pacific sea-board, and he will find here at Bicton more varieties of American trees and shrubs than he named and noted on the Western Continent.

When he has seen the Pines of California, of the Rocky Mountains, of Michigan, Canada and Maine, and heard the solemn song and murmur of their branches in the forest breeze, he will indulge in the self complacent sentiment that no one can tell or show him any thing new in the race of conifers. He may boast that he has seen twenty,—perhaps even fifty kinds of that tree in his explorations. Let such a man visit Bicton, and run down its tree roll, and read its record after this rate:

Pine,	200 varieties.	Maple,	20 varieties.
Oak,	200 nearly.	Hickory,	15 "
Willow,	300 varieties.	Thorn,	160 "
Elm,	120 "	Bramble,	46 "
Ash,	60 "	Holly,	26 "
Poplar,	30 "		

The whole number of varieties of trees and shrubs in this wonderful collection is nearly three thousand.

Now take any one country or continent, and select a specimen of every distinct variety of tree and shrub to be found within its area, and then place the whole side by side with the Bicton arboretum, and the disparity will indicate the unparalleled assiduity, effort, taste, genius and pecuniary means brought to bear upon this British Museum, of nearly every wooded trunk, branch and bush that fans its foliage in the breath of heaven.

To make climates and soils, and genial surroundings for these productions of all the zones, so that they shall be at home and thrive as in their native lands, requires an insight into their habits and wants, and a genius to cater to them, which must rank with the inspiration of the artist as well as the science of the savant.

The Park is very extensive, most pleasantly undulated, and presenting the happiest variety of surface for picturesque embellishments and views. It is well studded with fine old English Oaks, Beech, Elm, Chestnut, Sycamore and Thorn.

One striking feature is a long avenue of Auracaria imbricata, (to use the ugly latin name given to a South American Pine,) which would lose all its comeliness and value if it were as common as White Birch is with us. Here it is esteemed among the rarest of the Pine tribe, so that an avenue lined with it for a long distance, is a sight peculiar to Bicton. It is a very porcupine among trees: the trunk and branches being tiled with ear-shaped scales, pushing out their outer ends as a hen ruffles her feathers, and looking very rough and shabby.

North of the park is a great Pine plantation, with carriage drives diverging in different directions, and lined and over-arched with foliage and flowers that were never seen in England when Thompson wrote his 'Seasons.' I mean the ærial blossoms and the leaves of glistening green, which the American Rhododendron gives to the shrubberies of this country. I doubt if ever Thompson saw this garden queen of beauty, or dreamed of such tinting as suffuses the cheek of its summer glory. *Nine miles* of this June shrub among flowering plants, line the drives through this great plantation; and, when in bloom, they both perfume and illumine the quiet pathways among the tall Pines, whose protecting shade and shield prolong the blossoming, holding out their broad palms against the unfriendly winds."

HARD PRESSED SOIL.

BY J. STOUGH.

I think it is in Downing's *Horticulturist*, Vol. 5, page 224, that you called attention to the advantage of a firm soil. I read it at the time,—16 or 17 years ago. My interest in the matter was increased from having observed the same or similar phenomena before reading it. I have not seen any attempted explanation of the matter.

Recently I have got on the track of a solution that gives me some satisfaction, and will attempt an explanation. Spring bulbs will send up their shoots through frozen ground, and roots *can* penetrate soils of great solidity and firmness, but they *prefer light* to heavy labor.

Most of soils plowed or spaded consist in part of lumps large and small, though easily crushed, or penetrated by roots, yet when a root reaches one of these it passes around and not through it. The interior of that lump remains entirely useless.

There is often a large quantity of those not hard ones but more firm than the spaces between them.

These spaces, or portions less firm, contain the roots, rendering useless a large portion of soil; and the loss of soil is not all. If the roots could penetrate every portion alike, they would be in a far better position relative to each other and the plant above them.

One would think this Illinois soil so loose, and the lumps of so little firmness, that it made no difference. But here, and after passing over it a common roller, I find lumps, 6 to 12 inches deep, laying idle, and the roots around them.

I think, if we examine soil in a pot that has been well pounded in, and after growing the plant awhile, we will find the roots more numerous and diffused through the soil, than if it were loose, or had loose seams through it.

But, though the above is correct or true, and in some cases making a great difference in growth, it is not all we want to know. Though a loose and firm soil be each alike homogenous, I think the latter is still the best, but makes less difference than in the former case. But a loose, cultivated surface on a firm subsoil, when the roots reach the solid they hesitate: some go ahead, some turn aside: there is confusion in the ranks. The entertainment of the roots (as Doctor Grant would say it,) is not uniform. In short, the production of numerous fibres, filling every portion of the soil, is caused by that entire sameness and disintegration of the soil caused by severe pressure.

I don't mean to get a Patent for the improved method of growing things in firm ground, but I would like to read something that throws light on it.

[Our observing correspondent has, we think, come near the cause. We have had this and kindred matter under our study for 20 years, without coming to a satisfactory conclusion until the past year. A paper read recently by Mr. Meehan before the Academy of Natural Sciences, and ordered to be published in their Transactions, will, we think, tend to explain, and we shall re-publish it soon.—Ed.]

THE CURCULIO.

BY DR. J. S. HOUGHTON, PHILADELPHIA.

Does the Curculio breed in the Cherry? My inquiries on this point have elicited a response from Benj. D. Walsh, Esq., the editor of the Philadelphia *Entomologist*, which, I think, you will find of sufficient value to induce you to re-publish it in the *Gardener's Monthly*. Mr. Walsh is one of the most accomplished, acute and practical writers on insects in the country. He says:

"I have no personal knowledge that the Curculio breeds in the Cherry, but I see no reason to doubt the fact. Dr. Trimble, who is better authority on this subject than any other man in this country,—because he has made Fruit Insects his special study for years,—evidently believes that it does: for he recommends out-lying Cherry trees, which cannot be properly attended to, to be cut down, to prevent the propagation of the Curculio. (See his *Fruit Insects*, pp. 26 and 39.) And Dr. Fitch has remarked upon the singular anomaly, that the Cherry and the Thorn Apple, which are small fruits, hang upon the tree and ripen when stung by the Curculio, 'though so wounded, knotty and deformed, that the fruit is worthless:' while, on the other hand, the Plum, the Apple, the Pear and the Peach, which are large fruits, wither under the same circumstances, and fall to the ground. (*Address on Curculio*, &c., 1860, p. 18.)

It is undoubtedly true, that in very many Apples and Pears, the young larva of the Curculio perishes prematurely; but that is evidently because its natural food is stone fruit, and it is only when she cannot do any better that the mother insect has recourse to pip-fruit. Indeed, it is only of late years, since the Curculio has become so greatly multiplied, that it has been observed to attack pip-fruit. Consequently, as the Cherry is so closely allied to the Plum, that many botanists class them under the same genus, and as the Plum is the favorite food of this insect, we might reasonably infer *a priori*, even if we had no reliable evidence on the subject, that the great bulk of the eggs deposited in the Cherry, will come to maturity, unless artificially destroyed."

PEAR BLIGHT.

BY S. S. COOKE, CHILLICOTHE, OHIO.

The subject of blight in Pears and Apples, in the last twenty years, has received less attention than is demanded by a malady so extensive and fatal.—So little, in truth, seems known of the real cause of the disease, that all remedies thus far proposed, have, so far as my observation goes, proved comparatively valueless. Being a novice in horticulture—with no practical knowledge of medicine or botany—and having suffered, to some extent, from Pear blight, during the last eight years, I now seek the medium of a horticultural journal, hoping (possibly in vain) to attract the attention of horticulturists and others to the ravages of this disease. May I not ask, Has not the age arrived when the cause of blight should be certainly known? 'Have not horticulture, botany, medicine, and science generally, advanced sufficiently far at this day to dictate something like a reliable remedy for this disease? It is said that the Easterly States are comparatively exempt from the scourge; while we of the West, located on flat, rich, peaty, alluvial soils, suffer almost annually from its invasions. This 'occidental' character may account for its neglect by the wiser ones of the 'orient.'

Would that I could properly picture the ravages of the disease only here in Ohio,—a semi-western state! Surely such a picture might, at least, *tend* to arouse some of our skilful and practical cultivators to vigilant inquiries and observations on the

subject. I purpose in this article, Mr. Editor, to give some of my own observations and experience touching the question,—hoping I may excite the criticism, if nothing more, of those who may have approached nearer a solution of the problem than my very limited abilities have permitted.

What, in the first place, are the leading theories as to the cause of blight?

The prominent one is that advanced by the late A. J. Downing, designated the "frozen sap" theory. According to this author (excellent authority, generally,) blight in the Pear tree originated as follows:

A dry summer occurs, completing the (first) growth of the trees early; a damp and warm Fall ensues, which forces them into a vigorous *second* growth, continuing late; in this condition, the sap vessels being filled with their fluids, an early winter, or a sharp and sudden freeze (which is, perhaps, repeated several times,) occurs at night, followed next day by a bright sun; the descending currents of sap becomes thick and clammy, chokes up the sap vessels, freezes and thaws again, loses its vitality, becomes dark, discolored and poisonous, lodges along the inner bark, and remains thick and sticky all winter. In the ensuing spring, the sap rises through the alburnum; leaves and new shoots put forth, and the tree appears flourishing for a time. Early in summer, however, the descending sap mixes with the poisonous sap lodged along the inner bark, dilutes it, and the poison is carried into the branches and body of the tree, causing death, wholly or partially. The disease, according to Mr. D., originated in the autumn previous to the death or injury of the tree.

On looking among other authors I find that Mr. Field, as to the cause of the disease, coincides substantially, though not wholly, with Mr. Downing.

Mr. Barry does not appear satisfied with any theory thus far proposed. Mr. J. J. Thomas refers the cause to "changes of temperature acting upon trees possessing some unknown affection or predisposition to disease." And this is about the *status* of the question among *authors*.

Another gentleman, of scientific attainments, Prof. J. H. Salisbury, of Cleveland, has recently given to the public the result of a series of microscopical examinations, made by him in 1862, in central Ohio, upon Pear, Apple and Peach trees affected with blight. (See Ohio Agricultural Report, 1863.)

After numerous critical examinations, with a microscope of high power, he arrives at the conclusion that the disease is produced by a parasitic *fungus*, or cryptogamic plant, which not only poisons the tissues of the tree, but extracts their juices and vitality. The plant, he says, is found vegetating most abundantly in low, rich, peaty, boggy grounds, and in other localities of similar character, when broken up for cultivation or other purposes, and lying in a drying state. The spores (seeds) of this fungus are produced in countless myriads, and, being infinitessimal, are taken up in the cool, heavy fogs and vapors arising at night from the grounds, wafted by slight currents to other and higher positions, (generally upon, and, for a short distance, above, the 3d *terrace* from the stream bottoms—which corresponds with the line of suspended stationary fogs and vapors,) and are there suspended in these exhalations until after sun-rise, and in contact with, and among growing fruit and other trees. Thus immersed, the the trees inhale or absorb, through their *stomates*, these miasmatic spores in great quantities, which are thereby introduced in the sap or circulation of the tree, and become, in many instances, fixed in and along the soft and juicy tissues. Here they vegetate, and rapidly spread their mycelium (roots) through the soft wood and bark, or cambium, and, by their poisonous impressions and absorption of the juices of the tree or limb, for their own sustenance, soon cause death to the part affected.—This is the theory advanced by Prof. Salisbury, as nearly as I can glean it from the unarranged mass of material given by him to the public.

Having been the discoverer of this microscopic fungus, Prof. S. names it *Spærotheca pyrus*, from its disposition to affect the Apple and Pear trees. Another variety of fungus, of perhaps the same species, ascertained by him to be the cause of rot in the Pear fruit, he names *Mucor nigricous*, from its black appearance and crispy feel as a mould. The "curl" in the leaves of Peach trees, often so fatal in the spring, he attributes directly to the attack of another species of fungus, discovered and called by him *Spærotheca Persica*. This also invades the Peach fruit some seasons, causing rot of the crop.

In the same rich, peaty, boggy localities, where these several species of malarious cryptogams originate, is also found growing, with equal or greater luxuriance, according to Prof. S., another species of malarious fungus known as the *Palmellæ*, or ague palmellæ, of algoid characteristics, whose poisonous spores or miasm, elevated in nightly fogs and vapors, and inhaled by man, produce, as Prof. S. has demonstrated, the common disease *fever* and *ague*, and the other intermittent and remittent fevers of kindred type.

Sulphur is an agent known to control fungoid or mucedinous growths of all kinds; hence, Prof. Sal-

isbury recommends the use of sulphur, sulphites, sulphurous and sulphuric acids, as antidotes for blight. No opinion is given as to the value of sulphates.—He suggests the removal of the surface earth around the tree, in early spring, and an application of a compost containing one of the above ingredients. A cheap one would be made of refuse gas lime from the purifying vats, or pitch from coal oil refineries, boiled down to asphalt and pulverized, mixed, half and half, with good soil. This, placed around the tree, would be taken up into its circulation, and thus coming in contact with the the fungoid spores and mycelium, would destroy them.

Having now stated the various theories on blight, I next propose to note my own experience concerning the disease:

The city of Chillicothe is located on the west side of the valley of the Scioto, which averages from one to two miles in width. The soil of the valley consists of deep, rich, peaty alluvium, generating more or less fever and ague annually. Similar soil is found in all our stream bottoms, as well as frequently in other and higher localities. Excepting the past year, (1866,) fever and ague has prevailed extensively in all these localities for the last 5 or 6 years. Pear blight has, too, been equally prevalent in the valley during the same years, including the last year also; so much so, that nearly all our fruit growers in the valley have abandoned the cultivation of the Pear as hopeless. My own location is one mile west of Chillicothe, in an elevated glen or vale, and about one-fourth of a mile west of the edge of the valley. The grounds were purchased some three years ago, chiefly with a view to the cultivation of good fruits,—the soil being a good loam, slightly sandy, with a porous subsoil, and naturally very well drained;—there being no alluvium or bottom lands nearer than the valley, unless a small, wet corn-field, situate one-eighth of a mile southwest of me, be excepted. Fogs and vapors from the valley never reach this location, unless rarely carried up by easterly winds. Upon this elevated spot I had hoped to escape blight and late frosts.

In October, 1864, I purchased 500 thrifty standard and dwarf Pear trees, at Cincinnati and Columbus, embracing about 60 varieties, and heeled them in on my own grounds for winter. The parties of whom I obtained them informed me, upon inquiry, that there were no fall rains in the vicinity, or second growth in the trees: they being, apparently, all quite healthy, and free of blight. The next spring they were pruned and carefully set out in the natural soil, still showing no blight. Excepting two or three weeks of only tolerably dry weather, in May, the season was unusually wet until the 1st of September, when a dry fall ensued. During the summer, fogs (produced probably by local causes) were seen, occasionally, in the Pear orchard. About the 15th of June blight appeared; and during the next four weeks 16 trees were affected, (one in every 31), 12 dying of the disease. No second growth took place afterward, and the residue of the trees went out of the year 1865 in a very healthy state.

On pruning them in the spring of 1866, I found all healthy, showing no dark discolorations (indicating blight) on bodies or limbs.

The spring of this year was quite wet until about the 6th of May, when drought came on, lasting almost continuously until the first of August. About the 10th of June, however, a smart shower occurred moistening the ground two or three inches. On 17th another occurred similar to the first. No fogs were observable before this time; but, afterwards, occasional morning fogs were noticed in the north end of the Pear orchard, (from local causes no doubt). Up to the 17th there had been continued daily winds (subsiding at night) from the south-west, for more than a month. No attention was given to their course afterwards, as the weather became calmer. On the 19th, (two days after the shower,) I saw the first appearance of blight, having been watching daily for some weeks for it. On close inspection, four trees were found severely affected. A solution of sulphate of iron (copperas) was at once applied to the diseased parts; and five gallons of water, containing a pound of the sulphate, was also poured over the roots of each tree, after removing a portion of the earth. This *remedy* produced no visible effect,—all the affected trees dying soon.

Inspecting the orchard closely every few days through June and July, and no further cases occurring, I ceased observations for a time. In August, a few showers occurred. This month was followed by a very rainy September—inducing potato rot extensively. I watched, then, for a second growth in the Pear orchard; but none came on—although the foliage continued green until November. October being comparatively dry, our first frost did not happen until the 26th of that month. It was repeated several times during the fortnight following, but not with sufficient severity, I should think, to congeal the sap of the trees.

While passing through the orchard, about the middle of November, I casually observed discolorations in a tree, indicative of blight; and on examination, found, to my surprise, the body dead and dry from the disease. Continuing the examination, and testing the trees with the knife, eight others were found

blighted similarly; all the shoots of the past season, however, being green.

This invasion had, evidently, taken place in September, judging from the dryness of the deadened bark and tissues. In all cases the disease was in the body, extending only 2 or 3 inches up the limbs, and generally reaching down on the stem below the branches to a distinct line running obliquely around the tree, below which all was green. In 2 or 3 instances, only the body was killed to the ground. Thirteen deaths, in all, had occurred in the season, being one in every 38 trees, and averaging about 2 per cent. yearly for the two years. My city neighbors in the valley lost from 20 to 25 per cent. of their trees in each of the years. Another neighbor, residing one-fourth of a mile west of me, upon still higher ground, had no appearance of the disease in his trees during either year. His immunity is attributable, I think, to his elevated site, an entire absence of local miasm, and being beyond the reach of the fogs and vapors of the valley.

In each year of the disease in my orchard, some of the trees attacked were thrifty, some of medium vigor, and some feeble; the variety or character of the tree (whether on Pear or Quince) making not the slightest difference,—except that the Seckel escaped better than most varieties, though not entirely.

The inquiry next arises, What *theory* do these facts sustain? Certainly not the "frozen sap" one. They show that the disease may originate at any period of the growing season, and not in the *Fall* only. If the cause were attributable to the freezing of the sap, would not the entire sap of the tree or branch become corrupted, carrying death to all the parts, without stopping at a distinct line or point on the body? Why should freezing render the sap of the Pear *poisonous*? True, the Pear is a cultivated tree and not a natural one. But the same is true of the Cherry, Peach and Plum, and why does not their sap, also, become poisonous by freezing? The poisoning of the sap, may, I think, be referred more rationally to other causes.

How much consideration the other theories—those attributing the cause of blight to "changes of temperature" and "fungus"—are entitled to, remains yet to be seen. While there is much reason to doubt that either is *the cause* of the disease, there exist reasons for believing that each is a partial cause, and that the two combined may prove the real cause. It is well known, in medicine, that the human system is affected by sudden changes in the temperature of the atmosphere, or in raiment or food. These changes may not produce disease at the time, but they often throw the system into an abnormal state, deranging it, and predisposing it to disease. As an instance, the case of a man may be cited who, on the first occasion, partakes largely of some article of green or unripe food, whereby functional derangement, or, possibly, diarrhœa, ensues. If, during this derangement, he is brought into contact with a cholera atmosphere, the result is an attack of the cholera; while the man who has not partaken, will probably escape, though equally exposed.

A sudden change of the food of stock, and animals generally, from dry to green food, often produces what is called "scours." These derangements in the animal system, most of which are so slight as not to be observable, throw it out of its normal condition, and predispose it to an attack of disease from outward causes. A cholera atmosphere (an outward cause) does not of itself produce cholera in the human system; nor does an atmosphere charged with ague miasm produce, of itself, fever and ague. This may be proven by immersing any number of persons, whose systems are healthy and normal, in such atmospheres. They will escape the disease—their systems being able to throw off the malaria. But, if persons whose systems are deranged or abnormal, be thus immersed, they will probably be attacked.

This indicates that many diseases of the animal kingdom, such as endemics and epidemics, have at least two causes,—one of which is *internal*, and another *external*; or, to use medical phrases, *predisposing* cause, and an *exciting* cause. Neither of these is, properly, *the* cause in itself; but when both the causes unite or occur at the same time, they, as combined, constitute more strictly, *the cause*.

In the next place it may be asked, Why may not trees and other vegetable products be subject to similar rules concerning diseases which affect them? They inhale and take up food and drink for their support,—they *live* and they *grow*,—as well as animals. Reasoning analogically, therefore, it would seem that many diseases of trees are brought on by a plurality of causes, and especially so of those classes of trees which are produced by cultivation or artificial means.

Trees growing in a state of nature develop more slowly and healthily, and are rarely subject to disease. Cultivated Pears and Grapes are, perhaps above all other fruits, artificial productions, and are more subject to disease than other fruits. They are the best of fruits, and their successful cultivation requires much labor, united with much thought and

watchfulness. They verify the truth of a maxim of William Wirt, that "There is no excellence without great labor."

For the consideration of the horticultural profession, Mr. Editor, I now venture to suggest a hypothesis relative to the cause of blight, which, to me, seems to explain most, if not all the phenomena usually attending the disease. Blight manifests itself during the growing season only, and during, or just after, warm and rainy or damp weather; but more frequently just after rains, preceded by several weeks of very dry weather. Alternately wet and dry warm weather seems favorable to its development. The spores of most species of fungi are more or less diffused throughout the atmosphere at all times and places, though in greater abundance in damp weather, or in the vicinity of soils adapted to their production. They are inhaled and absorbed by the Pear tree through its stomata (and possibly roots), much in the same manner that miasm is inhaled by man,—and, getting thus into the circulation, they remain there for a longer or shorter period, either fixed or in motion, awaiting the proper conditions for development. If the tree continues healthy, and its normal condition remains undisturbed, the spores are probably thrown off by evaporation, or remain dormant, as in the case of spores of the ague plant in the healthy human system. But if derangement, from whatever cause, occurs in the circulation of the tree, whereby it becomes predisposed to disease form outward sources, the spores in the circulation and tissues at once germinate and develop into poisonous plants, producing the disease. Seeds of the more common plants, it is well known, often lie imbedded in the ground for years before an opportunity to germinate occurs.

Ordinary conditions, favorable to the development of blight, occur where the weather has been dry and warm for several weeks, and is followed closely by wet or damp weather.

During the dry weather all the functions of the tree are actively employed in supplying sap to meet the demand created by constant evaporation from the foliage. While this is going on, a sudden change of weather immerses the tree in a damp, humid atmosphere. At once the active vessels of the tree inhale and absorb voraciously, and become gorged with moisture and crude sap. This gorging deranges the healthy condition, and incipient decomposition in the tissues takes place. The spores of the fungi (either just introduced or remaining dormant in the tree,) at once seize upon the decomposing matter, and generate into plants, which send their poisonous mycelium rapidly through and along the cambium of the tree, and, eventually, into the cells and inter-cellular spaces of the heart wood, extracting the juices and destroying succulent shoots, branches, or whole trees, according as predisposed for the attack. Fungus, it is said, acts as one of nature's scavengers, seeking the removal of all decomposing substances.

A large majority of Pear trees have health and capacity to resist the derangement referred to, unless there is great concentration of the exciting cause,—just as a large majority of men have capacity to resist derangements in their systems,—and, hence, blight usually attacks only here and there a branch or tree.

The functional derangement of the tree may be styled the *internal*, and the fungi the *external* cause of the disease. Why some trees of an orchard are predisposed to attack, and others not, although equally exposed, seems incomprehensible. The microscope, it is hoped, may, ere long, determine the reason.

Of late years, the use of that instrument has led many learned men to the belief that several animal, as well as vegetable diseases, are of cryptogamous origin. Not only is it now claimed that cholera is of fungus origin, but that measles, certain skin diseases, some kind of poisoning, (from the common Ivy vine, for instance,) and intermittent and remittent fevers, are of like origin. In the vegetable kingdom, not only blight in the Pear, Apple, Peach and Quince, but the Potato disease, the Plum rot, smut in wheat and corn, rust of wheat, ergot of rye, mildew of Grapes, and other kindred affections, are confidently claimed to be of like origin.

During the past season I made several examinations, under the microscope, of diseased leaves and blighted branches of Pear trees, and, though inexperienced, had no difficulty in recognizing upon the leaves a most beautiful variety of fungus, with numerous pearl white threads anastomising over the entire surface, drawing, no doubt, their support from the tissues of the leaf, and causing the deadened appearance of a leaf in autumn. On examining very thin sections of the blighted wood, the mycelium of fungi were plainly visible in the cells and spaces between; showing, beyond question, the existence of fungi in blighted trees. In some instances, the fungi are thought to be a *consequence* of the disease, though, ordinarily, they are claimed as a *cause*.

I submit the foregoing theory of blight, not as my own, but as that of Dr. Salisbury substantially, believing it affords a more rational solution of the "vexed" question than any yet coming under my

observation. That it is correct in all its details I do not feel assured; but I have confidence in its chief features. Time and intelligent observation can alone test its truth.

The *remedies* proposed by Dr. S. are yet untried, so far as I am aware. The number of my own trees will probably prevent an application of them soon, except to a limited extent. An old and experienced horticulturist of our State recommends that iron shavings, scrap iron, and the scales and accumulations from blacksmiths' shops, be dug in around Pear trees, and also, that the bodies be repeatedly washed with a saturated solution of sulphate of iron, at a time when the sap is active, for the purpose of destroying the fungi in the circulation.

It will be observed that I have not, in the course of this article, *dignified* the attacks of locusts and Scolytus pyri, injuries effected by mere mechanical agencies with the name of "blight."

In conclusion, I will say that the profession will probably agree with me that the day has arrived when a better knowledge should be had of blight and its remedies.

THE INFLUENCE OF THE GRAFT ON THE STOCK.

BY DR. J. STAYMAN, LEAVENWORTH, KANSAS.

In reading your article in the December number of the *Gardener's Monthly*, on the "Influence of the graft on the stock," we were very much interested in your remarks and hope they may lead us to further investigation, correct views and beneficial results.

If the importance of this subject had been duly considered, it would have received the attention it merits, and a difference would have been pointed out between the influence of stock and the influence of the graft, as you have ably and clearly done.

As regards the influence of *stock* on the *graft*, we all admit, yet we may differ in its extent; that it dwarfs the tree and hastens its maturity we agree, and that it effects the quality of the fruit under some conditions we do not deny. But, that the stock retards as well as hastens the maturity of the graft, may be questioned by some.

However this may be, whenever the natural vigor of the stock far exceeds the natural vigor of the graft, it retards the maturity of the graft, as the following illustrations will show:

We grafted the Paradise on small sections of the common apple roots seven years ago, they have grown well but have never bloomed.

We also budded the Paradise and Doucin on the Domine apple with the same results, while the same aged trees have fruited by their side. We have also budded the dwarf Almond (*Amygdalis pumila*) on the Plum with similar result, and have seen like effects with other species. We believe it as much a principle as a less vigorous stock will produce the opposite effect.

This may give a solution to many questions asked, but not very satisfactory answered, as the following. Why do some trees of the same variety grow with more or less vigor? Why do they bear much sooner and better? Why are they of better quality? Many of us remember the particular tree on the gentle slope near by the rill, crooked and half blown over, where we went in our youth to gather the best *Rambo* or some other favorite apple.

Mr. William Thompson in his treatise on the grape refers to another influence; he says, "those who have paid most attention to the subject, have come to the conclusion that many of the highest flavored of our grapes, which are at the same time the most delicate and difficult to grow with success on their own roots, will one day be grown with perfect ease, when we have discovered the proper stocks for them; a late ripening variety will be got to ripen earlier when grafted on earlier stocks." Field in his Pear culture, refers to the same influence. This is most certainly an error; how any scientific and observing person can come to such conclusions appears strange, when every day's experience proves its fallacy. The stock may hasten or retard the maturity of the *tree*, but not the *fruit*. If this theory is true, we can convert a winter fruit to a summer one.

With these hasty remarks upon the influence of the *stock*, we shall now endeavor to make a few remarks on the influence of the *graft*.

Here we find that the graft increases or retards the growth of the stock depending upon its vigor. For instance, if we graft a very vigorous variety on a dwarf stock it *increases the stock's natural growth*, but if we graft a very dwarf variety on a vigorous stock it *retards the stock's natural growth*.

If we graft on a short section of root or stock of the same vigor and species, the graft controls the tendency and conformation of the root or stock, as may be seen in grafting the Milam apple, which roots deep and has a tendency to sucker, while the English Golden Russet has a tendency to spread its roots and not sucker. If we graft on the top of well established trees the influence is more gradual and reciprocal, as may be seen in top grafting seedlings with Yellow Bellflower and Early Harvest.

If we graft a congenial Pear on a Quince stock the vigor of the Quince will be in proportion to the

vigor of the graft. But the most extraordinary effect produced, is a *healthy graft* will make a *diseased stock healthy*, and a *diseased graft* will make a *healthy stock diseased.*

As remarkable as this may appear to be, it is nevertheless true and susceptible of demonstration. In illustration of this fact, if we take a healthy and diseased grape vine, for instance the Concord and Catawba, graft the Concord on the Catawba and we will have a healthy Concord vine with all of its good qualities; but if we graft the Catawba on the Concord, we will have a diseased Catawba vine with all of its diseased tendencies.

The same rule holds good with different species and become a general law. If we graft a variegated variety (which is in a diseased condition) on a plain leaved variety, the result will be a diseased tendency, which may produce a variegation in the stock, but not of the variety of the graft. We have seen several instances of variegation being produced, but always of the same variety.

Likewise if we graft the Mountain Ash with a Pear it will influence the stock for health, disease or growth depending upon the condition of the graft, but it cannot produce a "*Pear shoot*" from the *Ash stock*, neither has any other species the power or influence to change the stock; and when such cases are given they should be throughly investigated. We are all liable to be mistaken and may become the victims of the curious and wondering. We have heard of numerous instances of unnatural phenomena, but were always too unfortunate to be able to find them.

CRITICISM OF ORCHIS.

BY ROSA.

As one of those who cultivate Roses on their own roots only, and having after long experience discarded the culture by budding or grafting, I feel inclined to question the assertion of Orchis, that soft wood cuttings produce only weak and spindling plants. The mode of striking from soft wood which he describes may very possibly produce such, but he should remember that there may be several ways of growing from soft wood. There is one mode which is practiced by only one or two establishments, but which is simple and at once accepted by any one to whom it is explained.

If Orchis had desired it, I could have shown him in the autumn forty thousand or more of Remontant and Moss Roses all grown from soft wood, and presenting each several branches two or three feet long of strong wood throughly ripe. The roots of these are also strong and abundant.

Some twenty years ago being in the trade, I decided that the country needed a large quantity of Roses at a cheap rate, and determined to supply them.

I procured many thousands of Manetti stocks, budded them and grew beautiful plants. I sent them out, and then came the rub.

Professed gardeners liked them because they knew how to keep down the suckers which grew up strong and defiant from the stock. But the masses in this country do not keep gardeners and they wish something that will go without pruning at least one summer and give bloom desired.

From all sides came the cry, "your roses are nothing but single ones." The suckers had grown up, drowned out the finer variety,and produced an abundant crop of worthless flowers. I tried it again next year, and with the same result.

I then discarded it forever, as all growers for the people in this country must always discard it; a plant which requiring the care of a professional gardener will never meet the requirements of the mass of purchasers.

What next was to be done. Layering was to slow and uncertain for my purposes. My aim was 100.000 plants per year. About that time I obtained the services of one of the most skilful propagators, whose long experience with our climate, gave him additional value.

We then hit upon root grafting, and after the first year were ready to shout "Eureka." Our mode was the identical one described by Orchis, and our plants were vigorous and healthy. We put in use all our appliances of houses and material and thought that we should now be able to reach our goal and furnish vigorous roses at European prices.

The next autumn came and we realized that "Man never *is* but always *to be* blest." Our roses had died, some in the grafting, some in the planting, and some in the growing.

The plants which lived, grew strong, luxuriant, and like the poor man's children gave the beholder a realizing sense of the excellence of this mode of rearing. A stranger did not realize how many of them, like the poor man's children had died in the rearing.

We could hit on nothing better however, and so we struggled on for ten years, growing good plants for our customers, but never being able to grow them in sufficient quantities to sell at 10 or 15 cents each. Others were still more unsuccessful than we, and the result was a limited quantity of roses every where at high prices.

This I felt would never answer; I was certain that

out of the millions in America, there were a half a million that wanted a rose each. Nature never made a want without the means of supplying it, and these means we sought for. We "swung around the circle" and tried a'l sorts of experiments. We finally settled upon the mode of growing from soft wood, which year after year proved so fully the true system, that we marvelled at our blindness in so long overlooking it.

There was no secret to be discovered, but simply an application of well known principles. Like the broken egg of Columbus, it was too simple for the attention of the professional men.

Each year as it goes by, proves incontestibly the value of our system, and by it we can grow half a million of roses at less expense than ten thousand by our root grafting. Our roses by this mode are also stronger, with more luxuriant tops and more abundant roots. By it Moss roses can be produced as easily as Remontants, and Remontants as easily as Teas. Even that *Mauvais sujet*, Giant of Battles is obliged to succumb and make a strong plant.

It would give me great pleasure to convince Orchis that what I write is not mere assertion, and for this the plants themselves must be their own evidence, not a dozen selected, but whole squares of 10.000 each.

I should like to convince him that there may be things unheard of in his philosophy, and that, unless he is in possession of absolute wisdom, he should not question the sincerity of those who advertise what they possess, viz.; roses on their own roots, not budded or grafted.

IMPROVEMENT IN GREENHOUSE STRUCTURES.

BY MR. P. HENDERSON.

In the February number of the *Gard. Monthly*, in 1864, I gave to your readers plans and descriptions of my Greenhouses, then erecting, far surpassing anything we had previously in use. These operated so very satisfactory that they were almost universally modeled from by all Nurserymen and Florists, who had seen them in operation. But, even in attaining that high degree of improvement, we have, by further changes in erections made this season, found that these were yet far from perfection.

The general plan of the "Improved" erections I made the past summer, in no way differs from those erected and described in 1864. They are the same low houses joined together lengthwise, in sections of 3 each. The mode of heating and ventilating, height of walls and benches, are identical,—with these, we have not been able to see any means of improvement.

The merit of our new plan is, that we get nearly double the amount of light, which is of the utmost importance in all plant growing operations during the winter months; for, be it for winter flowers, fruits, bedding plants, or vegetables, could we have the roofs of our greenhouses or pits, one unbroken sheet of glass from November to May, so much the better. The nearest practical approach to this, we think, is our recent erections. These are formed of sashes 3 feet 10 inches wide by 6 feet in length, glazed with 8 by 10 glass, put in the 10 inch way. So that in each sash, there is less than a fifth of wood.

Every alternate sash is screwed fast to the wall plate at bottom, and ridge pole at top, *thus standing in lieu of rafters*. Placed between these is the moveable sash, on each edge of which I screwed a fight cap of 2 or 3 inches wide to cover over the joining of the sashes to exclude air and water. The great advantage of this plan is that it dispenses with the rafter which darkned the house to the serious injury of the plants, during the winter month. This is the first time I have ever seen the rafter dispensed with, when sashes were used. And no fixed roof should ever be used for plant growing.

The idea was suggested to me F. L. Perry, of Canandaigua, N. Y., over a year ago, whether it was original with him or not, I do not know, but whether or not he is entitled to my best thanks for the suggestion, which has been of great value to me, as I have no doubt it will be to all who follow the plan. So satisfied am I with its great importance that I have in contemplation to change all my houses to this system believing that its advantages in one season will more than double the cost of the change.

As an example of its advantages, a house planted with Bouvardia on the new plan, gave us an average of 1000 trusses of flowers per day for the month of December, while by the other plan one of the same size gave less than half that number. With Carnations, the difference has been even more marked, those in the l ight houses being far superior both in quantity and quality.

A volume might be filled with the confession of all the blunders we have made in Horticultural operations in the past twenty years, and in none more so perhaps than in Greenhouses and Forcing pits. Many of us have good reason to be satisfied with our business success, but I honestly believe, that half the number of years would have sufficed

to place many of us where we are to day, had we started with a knowledge of our present "Modern Improvement."

NOTES FROM CAPE MAY CO., N. J.

BY MR. C. H. SPOONER.

When last I greeted you 'twas from your own Parish, (Germantown). But the enemy was too much for me there: Rose bugs devoured my incipient Roses, and thinned my grapes with unsparing jaws; curculios growing too populous for the Plum trees, dipped their dainty crescent into the Cherries, Pears, and Apples; whilst some predaceous green legged animals, (was it Rats, think you?) gnawed my Corn, Tomatoes, and other vegetables. So in despair, I beat an ignominious retreat to the City.

But when spring came, with its soft sunshiny days, budding trees, and song of the mating blue birds; when the grass grew green in the Public squares, and the Crocus and fragrant Hyacinth peeped up in the city yards; the old leaven commenced to ferment in my veins; I thirsted for green fields and babbling brooks; I longed for the smell of the fresh earth, turned up to receive the fruitful seeds, my eyes ached to behold again the glory of the Orchard, bursting into bloom; and the warm nooks in the woods, where the sweet wild flowers grow. Ah! how ineffaceable are these imprints of nature in our hearts.

The poor country boy coming to the City, and entering into the battle for wealth, by fighting onward and upward, learns with each increasing year, that the love for country life, implanted in his youth, grows stronger; and looks forward to the time when he can retire, and pass his remaining years, under his own Vine and Fig tree.

But, as you say, this has nothing to do with Cape May County. Well in this out of the way nook, I found a small place that I thought combined several advantages. A pleasant shaded Cottage, with comfortable ou buildings, good water; healthy, near rail-road, and stores, &c., and within a short drive of the Sound and Delaware Bay; this was a chief attraction to me, for there are days when one would feel of Paradise even. At such times, I would put the gears on *Rosinante*, take my fishing line, and on the sparkling waters of the sound pass most pleasantly the long summer day, angling for gamy Bluefish, the dainty Hake, or still more toothsome sheephead; or crossing over to the Beach, dip into old Ocean's briny serf, and picnic under the gnarled and stunted Cedars that line the sandy coast. Here whilst inhaling the fragrant incense from my meerschaum, I would think of those unhappy mortals who go to the crowded watering places for their health (?) The expense of a family for a week's unsatisfying pleasures, costing about as much as would pay the interest on a place like mine for a year.

The climate here is very pleasant; the air in summer is cooled by the waters of the bay one side, and ocean on the other; the winters are not severe as here in Philadelphia, very little snow and extreme cold.

The soil is various—sandy, sandy loam—gravelly, and heavy loam—frequently all the above in a few acres; most generally however the varieties of soil runs in different veins, or tracts.

In regard to fruit, I found that most of my apples (and the trees. set very full) dropped off, or rotted on the trees. I cannot account for the rotting, as the trees are young and healthy. Pears on the contrary do remarkably well here, the trees being very long lived, which I attribute to their being grafted, mostly, on the wild sour Pear, that seems indigenous to this country. I never saw more perfect specimens of Bartlett, Seckel, or Virgalieus, than grew in my garden. Grapes, from all that I can learn, and from a few vines on my place, ripen much earlier, than, even in the city yards.

Having a piece of very gravelly land, sloping gen tly towards the South, I intend planting a small vineyard on it next spring; do you think the black peat, or Muck, of which I have an inexhaustible supply, would be good as a fertilizer for the vines? [Excellent.—Ed.]

In some of the best grape districts of France, the Vineyards are planted in a soil composed almost entirely of gravel and stones, a little vegetable manure being put around the vine each year; the vine, are trained very low, and the heat collected by the stones during the day, is given out slowly at night, thus making a more even temperature; the gravelly soil also receiving a perfect drainage.

As I had great success in growing Watermelons, perhaps it would be interesting to some of your readers to know how I proceeded. About the first week in May, I had holes made, (the ground being well plowed and harrowed previously,) about eight feet apart, every way; and about eighteen inches in depth, filled with good *rotten* barn-yard manure, and small handful each, of Phosphate and wood ashes, a few inches of soil was drawn over, so as to form flat-topped hills about six inches high, and fifteen inches across the top, the seed being covered about two inches.

The vines were cultivated a few times, and kept free from weeds, until they commenced to cover the ground. They were then left to themselves, and soon covered the ground completely. I had over Two hundred melons, some of them very large, and but few small ones, of most excellent flavor, I do not know the varieties planted, as the seed was saved from melons eaten the year before, a light green melon, with pink flesh and light colored seeds, ripened full two weeks before the other kind, which was very dark green and deep red flesh. The soil was a black loamy sand, and the land sloped gently, so that the water from heavy rains, would run quickly off; this is very important, as if the water lay around the vines, the hot sunshine scalds the leaves, causing a weak growth. I omitted to state above, that the space occupied was only thirty feet by fifty, I dont think the crop can easily be beat.

The Gardener's Monthly.

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RAISING SEEDLING FRUIT.

Among the Pleasures of Gardening there are few more interesting than the endeavor to raise new seedling fruits, flowers, or plants of improved qualities. When the journalist, in the exercise of his duties, warns the public that new varieties may not be *quite* as good as the natural ardor of the raisers may lead the buyer to expect; or when he asserts that very few seedlings of superior merit have appeared out of hundreds offered, and that therefore seedling fruits are a "nuisance," he must not be understood as discouraging efforts to produce good things. All that is objected to is the haste to believe or assert that something superior to any thing existing has been raised, and which the history of most fruits of the past few years has shown to be very unfortunate conclusions in the main for those who have had to buy them.

It is not so easy to *improve* fruits as many persons think. We seem to have increased their good qualities in some respects, but we soon find that there is a limit, and that we speedily reach the boundary beyond which we cannot go. We are accustomed to look on our sweet and large apples with some commiseration for our ancestors at no very distant date, who had, we are taught, nothing but "harsh crabs;" but the history of the Lacustrine inhabitants of Switzerland shows that they had pretty good apples in their days before even the knowledge of iron had any existence.

We can slightly increase the size of fruits, and render their flavor a little more palatable, and this improvement once made, we can seldom make more of it.

There is no instance, that we now remember, of any superior fruit being raised from one already considered as such, although that is the Van Mons' theory. He took seedlings, raised from them, selected the best, again raised, and, continued on improving with each generation—but as Mr. Wilder well remarks in one of his Pomological addresses, he took no thought of the immense amount of Pollen of other varieties floating through his orchard, and which renders his successes due to hybridization, rather than to the theory of progressive development he sought to sustain. Thousands of seedlings from the Seckel, Bartlett and other popular kinds have been raised without any one being better than the parent in those qualities which render them famous.

Notwithstanding all the trials that have been made in this direction, our best new fruits are generally those discovered by accident, coming from whence no one knows, and originating no one can tell how. Even when the processes are supposed to be known, accident has evidently more to do with the matter than design. The origin of Hovey's Seedling Strawberry is supposed to be well understood, but though too many years have elapsed since its introduction, the raisers have never been able to produce one they think better. Perfection was reached at a single jump, and reaching it, remained there.

In the endeavor to raise new fruits, therefore, we cannot but regard the teachings of Van Mons as having been particularly unfortunate, and the cause of an immense amount of labor and skill being really thrown away. The true policy is to take inferior kinds, evidently not far removed from a wild state, and *hybridize* them with kinds that have some quality we would like incorporated into the kind we would develop to a higher grade. The fixed habit of the wilding once broken, it will proceed in its own seedlings naturally onward, until some limit is reached; when the seedling raiser must begin again on some other wilding as before.

Mr. Parry tells us he has never been able to raise any thing from the Philadelphia Raspberry equal to the parent, this has been the experience of all with Delaware Grape, Lawton Blackberry, and so on. If the same experiments had been made in starting from a wilding, the results would have been different; and herein lies the probability, that Wilson's Early may be desirable, because it is in some way derived from the Dewberry stock, which before had made no steps towards improvement.

There are none who have gardens but who would derive much pleasure from the effort to raise seedling fruits or flowers. We are anxious that their efforts should not be misdirected, and hope they will weigh well our remarks.

COURTEOUS CORRESPONDENCE.

When we take up a religious or political newspaper, we are pained by the acrimonious personalities, and tone of keen sarcastic irony with which the writers discuss topics with one another. The effort seems to be to show how sharp one can keep

his wit at the expense of another's feelings. Language which no gentleman would think proper to apply to another in personal discourse is freely employed in print, under a seeming notion that epithet is force, and ridicule reasoning.

On taking charge of this journal we resolved that this unfortunate example of those who ought to teach us better should not be imitated in our pages, and we have rejected articles, and cut out sentences of others that would perhaps half fill a volume of the journal. Yet, with all our care, expressions escape our critical pen, which we are often sorry we had not more closely watched.

There are times when it is necessary to criticize with severity; when to "spare the rod is to spoil the child;" but there is no reason even why this should not be done with such strict justice, that even those castigated shall not object to the legitimacy of the weapons employed.

We look upon Horticulture as one of the very best agencies for producing Peace on earth and good will amongst men. It draws together men of all creeds, parties, and nations, better than any bond of which we know, and we are anxious to preserve it from all the discourtesies and asperities which weaken other friendships.

We hope all our correspondents will take the hint, and by a careful regard for the feelings of those with whom they discuss points, aid us in preserving that record which with the few exceptions we have referred to, we feel very proud of.

BEES IN ORCHARD HOUSES.

Our readers will remember a discussion going on in the English papers as to whether Bees were or were not an injury to the flowers of fruit trees grown under glass, which one of our correspondents referred to with extracts in our pages. It was contended that if any good resulted from their agency in fertilization, it was more than counterbalanced by injury to the pollen and organs of fertilization.

Also will our readers remember our notice of a very successful fruit forcing house under the care of Mr. Wm. Young, gardener to Stephen Morris, Esq., near Philadelphia, where peaches by the bushel grew in fifteen inch pots and eighteen inch tubs. Possibly no fruit house in the United States—has greater success than this; we do not understand how any can well be better.

Now Mr. Young attributes much of his success to the agency of Bees in well fertilizing his flowers. He places a hive in the house as soon as the flowers begin to open, and the bees are kept there until the last flowers are gone, when they are again removed to the open air, and the hive covered a little when the bees retire to their subtorpid state until the spring time comes.

We had a chance of seeing Mr. Morris' house recently when the Peaches were in full bloom, with millions of blossoms, and with hundreds of bees fluttering from flower to flower, "gathering honey all the day," as if to them the orchard house was the real summer season. The odor of Mignonette and Heliotrope, the gaiety of the scarlet Geranium, the promise of bushels on bushels of fruit, and the "life" given to the whole scene by the bustle of insect animation made us strongly feel how happy is the man who can afford an enjoyment like to this.

As to any injury resulting to the crop from bees, it is just the reverse. Mr. Young's experience proves it. No doubt those who have recorded failures where bees have been kept in orchard houses, have honestly recorded their failures; but it is evident the bees have been blamed for what they have had no hand in producing. Some other thing causing the trouble.

TRANSPLANTING RASPBERRIES AND BLACKBERRIES.

As the season is now approaching when the remarks will be appropriate, we remind our readers of what we pointed out last fall, that most of the failures with these arise from *planting too deep.* They will not root out from the cane, as most things will from their stems—the buds have to come from the crown or the roots, and several inches of soil to come through is too much for the buds. They will sooner die first.

And while on the topic we may observe, that propagators do not seem generally to know that root cuttings are much better planted like other cuttings, than laid down flat under the soil as usually done. The tops should not be above the soil, but about level with the surface.

A REMARKABLE FACT.

The Philadelphia *Public Ledger*, has the following paragraph:

"A gardener employed on the estate of Joseph Buonaparte at Bordentown, N. J., recently died, leaving his family in comfortable circumstances."

The poverty of Editors is proverbial, many of them having to lie in bed on Sundays, while their solitary shirt is being washed and fixed up for the week; but we did not know that gardeners were also expected to be so poor. We are glad to chronicle the fact that at least one gardener has managed to leave his children in comfortable circumstances.

The age of our departed brother is not given,—we trust it will not be necessary for the surviving members of the fraternity to rival Methuselah in order to get "comfortable." That one has been able to do so under any circumstances must be however taken as a very favorable sign of the good tim ecoming, when good gardeners will be paid what good gardeners are really worth.

OUR PRESENT NUMBER.

It has been our ambition that the readers of our journal should become a *thinking* class. Horticulture cannot be taught in any other way, nor can the most experienced improve without. Tell another exactly how to do a thing, and he yet fails to do it; or explain to him as much as you please the philosophy of a practice and he fails to apply it. It is this *application of principles* combined, theory and practice, which we have ever wished to make the peculiar feature of our paper. The present number will be found a particularly interesting one in this respect. The paper on Pear blight is especially valuable.

Those who have read our views know how repeatedly we have urged this view of the case perhaps a little farther, as we do not think that a predisposing cause is at all necessary for a parasitic fungus to act injuriously. Mr. Fryer's paper is also an admirable article, and indeed the whole list of correspondence is of that character which will just suit the wants of "our circle."

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Best Grapes to Plant—*A. C. C., Tyre, New York.*—I write to get your opinion in regard to the Iona and Israella Grapes, as I shall be very thankful for a little information from those who have some experience, and I shall be thankful for your opinion about them. I want to plant two acres with grapes this spring, and I want to plant the best. I am near Cayuga Lake. My soil is a deep, gravelly loam; a south-eastern exposure, from forty to fifty feet above the level of the lake.

[The Iona is a grape of first-class flavor, and wherever the Catawba will grow, we think it perfectly safe to plant Iona. The great misfortune of the Iona is, that it has been injured by zealous friends, who seem to suppose it necessary to the success of their favorite, that all other varieties should be depreciated. It was boldly avowed, that in the Iona we had a grape that was entirely free from the mildew, and, in fact, with it the millennium of grape culture had arrived. Finding that everywhere it mildewed as badly as others, people assumed (and properly on this ground) that they were deceived, and hence the outcry against it. But when we remember that we have no first-class grape that is exempt from liability to these ills, there is no reason why the Iona or Israella should not have a chance as well as any other. Our correspondent must ascertain if the grape is generally free from disease in his vicinity. If it is, he may risk the choicer kinds. If disease is prevalent, he had better plant kinds like Concord, Clinton, and Hartford Prolific, which are not so likely to suffer under circumstances that will injure other kinds.]

Fruit Crops in McLean Co., Ky.—A correspondent says: "We had a poor crop of apples in this section of country the past season. The Hewes' Cider Crab is the most hardy and productive variety we have for cider. I think, when it becomes generally known, it will be planted by thousands. Strawberries did well with me. Grapes on young vines did well. The old vines appeared to be wanting in fruit-buds. When I say grapes, I mean Concord, Delaware, Hartford, Diana and Catawba, and not Allen's Hybrid, Cuyahoga, Logan, Rebecca, Pauline, To-Kalon, Anna, and a number of others which I could mention, which are being sold to the inexperienced at high prices, to result in disappointment. Pears did well, though rather scattering on the trees. But the worst thing happened to me was that the blight got on my dwarf pear orchard, and killed more than one-fourth of the trees. It was the first I had ever noticed on them, and some of them were eight or ten years transplanted. It was a kind of assortment orchard of thirty or more varieties. It took the most thrifty trees and varieties first, such as Vicar of Winkfield, Glout Moreeau, Beurre Diel, Fondante d'Automne, Louise Bonne de Jersey, &c. Winter Nelis, Buffum, Dix, Gray, Doyenne, and a number of others it did not touch. After the leaves were out in the spring, we had several days of cold, cloudy weather, nearly cold enough to freeze, which, I think, chilled the sap so much, that it ceased to perform its office, and the result was the death of the tree. What do you think was the cause? I have lost so many thrifty young trees from cold, that I am almost afraid to advise persons to whom I sell trees, to plant them in very rich ground, lest they should

make a large succulent growth, and be killed by the winter following. I have a pear, which I propagated from a tree growing a few miles from here, which gets ripe in June, about two weeks before any of the June apples. It is a small, yellow, pear-shaped fruit, somewhat like Madeleine, with red next the sun; flesh a little tough, sweet, with some bitter; young growth of tree large, erect; bark red; leaves thick, and shaped somewhat like Doyenne d'Ete, but of a different color. It is not described in Downing's Revised Book of Fruits. If it is, he misses the time of ripening a long ways. Have you any idea of the name? It is said it was brought here from Washington City some ten or twelve years ago."

Greenhouse Glazing and Heating—*R., Chicago.*—I wish to build a span-roofed greenhouse, 30 by 18, and purpose using 8 by 20 glass, not *lapped*, but lead-glazed, and soft putty "run in" before closing,—after the fashion of church windows; the lead glazing only where the laps would otherwise be, the glass afterwards tacked and puttied to the sash-bars in the usual manner; the roof to be fixed, no running sashes. The object sought is economy in the matter of breakage of glass. Would the plan secure the end aimed at?

How best had such a house be heated to be able at all times to command a right temperature of 50° to 55° in *some portion* of it? Cheapness, in the sense of lowness of cost, being a *sine qua non*, I shall have, to begin matters with, the materials of about 55 feet of old flues and chimney and about 60 feet of 1¼ inch steam-pipe. How would a band 3 feet wide and 4 inches deep, all around the house, do? Wood, lined with lead and covered with slate. And if so, what sized boiler would be needed to make all safe?

Any information on the above, or kindred points, would very much oblige the writer and some others of your readers, equally interested parties.

[We do not see what our correspondent is going to gain by these leaden joints. Church windows are not exposed to the direct rays of the sun as a greenhouse roof is. The lead will get very soft by the hot summer suns, and we think leakage must ensue when the lead contracts again. Then the lead will be very weak under the circumstances, and, with such wide glass, be very liable to sink some with the weight.

As to heating, if lowness of cost be a *sine qua non*, fire-brick flue-pipes are, by all odds, the cheapest, both in first cost and after maintenance. But why should this be the first essential in a house intended for pleasure? Nothing is so neat or nice as a hot-water boiler and apparatus in an elegant house. As to how large to get the boiler, it need not be a large one. More depends on how it is "set" than on the size, and also on the number of pipes. That the air can only be warmed by actual contact with a heating surface, the more heating surfaces the better. We do not see that, in your case, a tank would be of any use at all.]

Mice in the Post Office.—A correspondent complains that mice in the post office ate holes through packages, and destroyed many of his seeds.

Under the old Mosaic dispensation we find no punishment for these depredators, nor do we know that any thing has been decreed against them under the new. At any rate, they seem to have all at once found a good chance to operate. Not only seeds, but bank bills, letters, papers, &c., have disappeared all over the country more during the past six months than we have ever heard of before. Cats ought soon to be at a premium. The publisher states that nearly 500 copies of the *Monthly* have miscarried during the time named. Where are they?

Bad for the Employer.—*A Gardener*, writing about a situation, tells us:—"This situation is getting too hot for me, and I have given Mr. —— notice to quit the place."

It seems to us, if the place is *hot*, our correspondent takes things very cool, to tell his employer to leave. Generally it is the gardener who leaves, and not the employer. We expect there will be a warm fight between these two; and we shall be glad to know, in the end, which one beats.

Smartweed.—A package of specimens of the horse-fodder a Baltimore correspondent recently recommended, has been received; and we find it is composed of about equal parts of *Polygonum hydropiper* and *P. persicaria*. The ass has long been a laughing-stock to wiser animals for preferring a thistle to softer food. The ass may now have his turn, when he sees the horse warming his throat on water pepper. There is no gainsaying facts.

Dwarf Norway Spruce—*O. T. Hobbs, Randolph, Pa.*—I enclose you branches of a Dwarf Norway Spruce. The tree is about twelve years old, and is about eighteen inches high, delicate and beautiful. I have also a distinct and improved Balsam Fir.

[Dwarf Norway Spruces are common in nursery-

men's catalogues. Abies pygmæa, A. compacta and A. clanbrisiliana are all Dwarf Norway Spruces. We see no difference between yours and others; but, as *habit* has more to do with the value of a variety of evergreen than foliage, the value of yours cannot be decided by leaves alone.]

Making Tender Grapes Hardier.—Our correspondent "Horticola," in reply to a New Jersey correspondent noticed last month, will, in a future article, give some further ideas on this subject—our reference to the Clinton Grape roots for grafting, being only a portion of the processes he would employ.

Our notice was rather premature, as Horticola usually writes only after actual experiment. In this instance, at the request of our correspondents, he will give his ideas, and perhaps then the experiments of others will aid his own.

Raising Trees in the Far North-west.—A correspondent at Maddin, Minnesota, writes:—"There is no place in the North-west where the planting of forest trees is of more importance than in the western half of this State. It is one wide expanse of prairie, with very little timber. The soil is of the most fertile description, and produces, when planted, forest trees with wonderful rapidity. I have measured growths of the past season of the White Ash, Red Elm, Red Oak and Cottonwood from three to six feet in length. I intend to grow lines of them around my fields as shelter belts, and to prevent the snow from blowing off. What think you of the *Norway Fir* for this latitude, 43½° north, 93° 5′ west longitude? The Red Cedar is indigenous to this State, also the White, Grey and Norway Pine; but they cannot be transplanted in the prairies successfully, without incurring expenses too great to justify it.

"I am growing the Rock and White Maple, Black Walnut and Wild Plum in a grove, to protect my buildings and yards. I have now in trench 2500 yearling Maples, procured in the forest; also several hundreds of the White Ash and Ash-leaved Maple; which I shall set the coming spring. I have a strip, 20 rods long, six rods wide, planted one year ago with Black Walnut. They made a growth last season of from six to twenty-four inches.

"My farm is situated on the southern end of a lake, half a mile wide, and a mile and a half long. The ground is dry, and rolling very slightly. Soil two to four feet deep, snuff-colored sand and clay loam. Subsoil yellow clay, mixed with gravel to the depth of twelve feet, then a tenacious blue clay, from ten to fifteen feet thick, below which we find water in quicksand."

[The Norway Spruce should do very well in this case.]

Strawberry Raising near Richmond, Va.—A correspondent says:—"I think there is a good chance for making money at it here. We commenced picking them on the 10th of May, or rather commenced shipping on that day last summer, which, you see, gives us a chance to get into market before there is much competition. We cultivate Wilson's Albany, and I could not wish any berry to do better than it does. Peaches—Troth's Early and Tillotson commence ripening about July 4th, and every thing else proportionately early. Land is cheap, and there are also many other advantages offered to any one wishing to go into the growing of *early* fruits for Northern markets. But come down and see for yourself."

Vinegar from Sugar Maple Sap.—A Washington correspondent writes:—"I have somewhere seen it stated, that vinegar of good quality can be made from the water drawn from the Sugar Maple tree, as used for making maple sugar.

"Will you be so good as to communicate, in the next number of your *Monthly*, any information you may possess on this subject, and invite information from others? It would be well, at any rate, to call the attention of such as may have opportunity of experimenting on this matter. Something may grow out of it useful to the community. Any person who may be successful in producing a good article, would do well by forwarding a sample to the Museum of the Agricultural Department in Washington."

[We have no information on this point. No doubt it could be accomplished, as the elements are there. We shall be glad to hear from any one who knows.]

Mr. Barnett's Plan of Rooting Grapes.—We have a note from this gentleman, in which he says he has referred to our past volumes, but does not find any sentence that bears against his claim. He objects to our calling his plan a "secret," and says that he intended to make the plan public some day in the *Gardener's Monthly*, but, if Mr. Bateham's method suits its readers, he shall wait till a proper time.

In another note he also objects to Mr. Bateham's "infringing his copyright," by using the word

"rootling," and us for publishing it,—and thinks it necessary for the protection of his own trade interests to have this awful crime examined by the proper law officers.

Having thus given the substance of our correspondent's note, we hope he will now be satisfied.

Roses Imperatrice Josephine and Imperatrice Eugenie—*Mr. J. Pentland, Baltimore*, says: "In the February No. of the *Monthly* my attention was arrested by an enquiry with regard to the roses Imperatrice Josephine and Imperatrice Eugenie, whether they are one and the same rose.

In reply to that enquiry, I would state that they are very distinct from each other,—the Imperatrice Eugenie being of the color of deep rose, purple edges, of fine form, and very double, of vigorous growth, and altogether a No. 1 rose; while the Imperatrice Josephine is a pale flesh-color, nearly white, flowering in large clusters, and one of the most profuse bloomers we have. The latter is neither so double or large as the former, and the Imperatrice Josephine, in appearance and character, resembles the Duchess de Thuringe.

I imported both roses some years ago, and still have them growing on my grounds. I find that since the varieties of roses have increased so fast of late years, there is very great confusion in nomenclature, and there are now so many names for roses, and so very little distinction, that it is time that those of an inferior class should be discarded from the list.

The desire has been so great of late for novelties, to the exclusion of really fine old varieties, that I have no doubt but the public will continue to have novel names in abundance and at good prices.

I send you the description of the roses, cut from my catalogue:

Imperatrice Eugenie.—Vigorous, deep rose, purple edges, fine form, large and double; a beautiful rose; one of the best.

Imperatrice Josephine.—Moderate, flesh nearly white, profuse in clusters, fine."

Rosin Weed.—*H. B.* writes:—"I frequently see in Californian literature reference to the 'Rosin Weed.' I should be obliged if the editor can inform a young reader of the *Monthly* what this plant is. A friend suggests that it may be a *Silphium*, to which the Compass Plant of the prairies belongs, because that has a resinous nature; but this is a very coarse weed, and the accounts of the Rosin Weed would seem to make it be one of delicate growth."

[We are not quite sure of the plant, but believe it to be a species of *Hemigonia*, a plant belonging to the same natural family as the *Silphium*. Some of these *Hemigonia* have a sweet, resinous odor, which gives quite a character to a Californian autumn in some parts of the State.]

Mr. Meehan's Nursery at Germantown.—It is necessary to remind our readers occasionally, that Mr. Meehan is engaged as *Editor only* of this paper. Whatever is intended for him as a nurseryman, should be addressed to him *at Germantown*, if prompt attention be desired. Matters relating to the publication should be directed to the Publisher, Mr. Brinckloe, in Philadelphia. When the two things are mixed up in one letter, it is not possible to give prompt attention to them. This will answer many inquiries recently made.

Fruit Prospects in Tompkins County, N. Y.—A correspondent writes:—"I regret to tell you that our peaches, cherries and pears are all killed. We had one night, during the latter part of December, when the thermometer dropped down to 22° below zero. They may be safe on the lake-shore, or within a quarter to half a mile from the lake. I live about a mile and a half from the lake. The lake has a very great influence on all kinds of fruit. I have no doubt but that cherries and pears are safe within half a mile of the lake. Seneca Lake lies 14 miles from the Cayuga (our lake), and within half a mile of the Seneca. There has been but two failures of having crops of peaches in twenty years.

"The lake is 900 feet deep, and never freezes, and is of the purest spring water. Crooked Lake is where the celebrated wine-growing vineyards are situated. It lays near the Seneca, and empties into it. These lakes are all about alike in regard to the ripening of grapes within half a mile of their shores."

Stock for Elms—*K., Boston.*—Will you have the kindness to inform me what variety of Elm makes the best *stock* to work the Weeping kinds on? Will the *American* answer?

[The American Elm receives the grafts very well. the "most natural," and, where to be had, a little Perhaps the *Ulmus campestre* might be said to be the best; but we should not hesitate to use any of the American species, though the *U. Americana*, or common White Elm, would have the preference.]

Sicilian Nut—*K., Boston.*—Can you inform me in relation to a nut, called the "Sicilian Nut?" A small tree, about a foot and a half high, was on exhibition in Boston last autumn, at the Massachusetts Horticultural Society's Annual Exhibition, by a man from New Jersey, who represented it as a very valuable and prolific nut from some foreign country, the plants growing to the height of six or seven feet, and he succeeded in engaging a considerable number of plants, to be delivered in spring. A scientific gardener—a man of much experience—thinks it must be a *filbert*, and says that he never knew of a nut grown in Massachusetts from imported plants, although large numbers have been imported by men familiar with the mode of culture in Europe. The gentleman above referred to informs me that the nut sold in the markets for "filberts," is not the true kind. It is like that known as "hazel-nut" with us, and grows spontaneously about the walls in Massachusetts.

By giving me the required information upon the above, you will very much oblige a constant reader.

[We did not see the nuts on exhibition referred to. From the description, we have no doubt it is the *Filbert*, but have never known them to go by that name. It is a very common nut in all parts of Italy, from whence many are shipped to other parts of the world. They have been called by some old writers, Pontic Nuts, from having been originally brought from Greece to Italy. In the time of the Romans they were extensively cultivated in Campania, and were called by them "Avellane" Nuts, from the chief commercial town of that province. The botanic l name, *Corylus Avellana*, is in reference to this fact. These filberts are long and slender, as compared with the common Hazel Nut. A larger and rounder nut is the "Cobb," or Spanish Hazel Nut, so called from its being very much grown in Spain, though originally brought, P iny says, by Flaccus Pompeius, from Constantinople, after one of the wars. It is the *Corylus colurna* of botanists. We think it is also called Barcelona Nut in commerce sometimes.

The "Hazel Nut" is the common wild form of *Corylus Avellana*, and is the common round nut of the stores. The American Hazel Nut (*Corylus Americana*) is smaller than the European.

We have gone into this at length, in reply to our correspondent, as little seems to have been said of the Filbert in American works.

As to culture, it thrives very well in this part of Pennsylvania. We gathered, last year, a large handful of very fine nuts from a plant only four years old, from a nut we sowed. It is said in Europe to prefer a warm and light stony soil, and not to like very rich land. We think the male Catkins are liable to be injured by severe cold, so that the little microscopic flowers, which appear in March and April, may not be properly fertilized, and we suppose a very thin crop would be the consequence; but where favorabl e, we think filbert-growing might be profitable. We note that it is liable to a very curious form of fungoid excrescence, very different, but of similar nature to the plum knot, which at times is very destructive in America to filbert plants.]

Name of Plant—*J. H. C., Dyersburg, Tenn.*—Your pretty white-flowered bulb is *Pancratium rotatum*. We should be glad of a bulb if it comes in your way.

The other subject next month.

Mohr's Book on the Grape.—Several correspondents have written to us, to know where this book, in the original German, can be had. "Horticola" informs us, in reply, that Mr. E. Stieger, No. 17 North William Street, New York, can procure it.

Books, Catalogues, &c.

Gardening for Profit. By Peter Henderson. Published by Orange Judd & Co., New York.

It is not necessary to introduce Mr. Henderson to our readers. Most of them know that he sat down near New York, not so very many years ago, on a rather hard seat, and that he now reposes on a bed of down; and these kind of feats every one likes to know how to go and do likewise. That is just what he proposes to do in the pages before us. Yet, after all, it is very much like learning the conjuror's art. We are all attracted by the performances of Wyman the Wizard, and he very kindly undertakes to show us how it is all done. He writes a book, revealing the whole secrets of the art, and practically shows you that all he says can be done he can do; but we find, after all, that very much indeed depends on the man who does the thing, as well as on the way the thing is done.

There is a peculiar tact in making things pay, which no education can teach; and hundreds may take Mr. Henderson's book and learn every line in it by heart, who would not be able, after all, to do a tithe of what Mr. Henderson has successfully accomplished. Yet no harm results from all this.

Cities are overcrowded. The country is not half populated. Where there is one chance of making a competency in town life, there are a dozen from the cultivation of the soil; and hundreds will take Mr. Henderson's book to the land from the more overcrowded walks of life, and many a score of them live to thank the author as the first instigator of their improved circumstances.

A large number of new works, issued from the press during the past few years, have been what is popularly known as "rehashes." They tell nothing new; but as old works go out, new title-pages are stuck in, or two or three old authors are selected, a few catalogues of some Pomological Societies, and "Loudon" and "Knight," not to say Philip Miller and Abercrombie, thrown together like a lottery; and the "new book" is the prize we draw. It is refreshing to read an original book; and, though some will say that Mr. Henderson tells much that may be found in McMahon's admirable "Gardener's Calender," that is no objection, since, by actual experiment, he has made the teachings of others his own.

Yet Mr. Henderson is not free from the charge of slighting too much the experience of others. We notice this particularly in regard to the Tilden Tomato, which, he says, "should never have been sent out." No one could object to his saying he had not found it any better than any other,—that might be his own experience; but no one, who has read the public papers the past year closely, could feel justified in making such a sweeping decision. We published in our paper the first intimation the public received, that the Tilden Tomato had failed to give satisfaction in some quarters. This has brought out innumerable correspondents in, we believe, every agricultural paper in the land, in which the *great majority* praise it as a great improvement. We have never known any variety of fruit or vegetable meet general approbation; but in all our editorial experience we have never known any thing on which so many persons have recorded themselves favorably, except, perhaps, Wilson's Strawberry, Philadelphia Raspberry, or Concord Grape. We cannot think all these people ignorant of what they write. We prefer to think Mr. Henderson's judgment too hasty in this matter. On the other hand, we think his praises of some varieties too decided; but as we are looking for *his experience* in this work, we cannot object much to any partiality on this score, on the strength of the old motto, to "speak well of the bridge that carries us safely across the stream." What *he* has found the best, it is the object of his work to set forth, and it is right for him to recommend.

Horticultural Annual for 1867. By Orange Judd & Co., New York.

We are very glad the publishers have made this attempt to fill a want many of us have long felt. It is very well to feel that we are marching along, and that we have gained considerably in our progress along the road to improvement; but it always cheers the traveler to see a milestone occasionally. The philosopher may argue that it makes the road no shorter, but practically it does. So with a good Annual. We stop awhile, and see what has been done, and can go on with fresh vigor.

This being the first number, it is, of course, an experiment; but we hope the publishers will find it so well encouraged, as to get out another and a better one next year.

New and Rare Plants.

The *Botanical Magazine* for the months of September and October give us representations of the following plants.

Rhododendron Fortunei, described in our volume for 1859, is said to be closely allied to the R. Griffithianum; it has flowered with Mr. Luscombe, of Kingsbridge, Devon, and proves to have fine trusses of lovely pale rose-colored fragrant flowers.

Ilex latifolia, a fine Japanese Holly, hardy at Kew when trained against a wall, but not flowering there, though blooming freely in a temperate house. The leaves are 6 to 7 inches long, paler than those of common Holly; the flowers yellow-green, in dense axillary heads, and the berries globose, bright red.

Huntleya cerina, a distinct and rather handsome Orchid from Veragua, a bulbless epiphyte, with one-flowered peduncles much shorter than the the leaves, the flowers of a pale waxy straw-color, the lip large yellow, with a semicircular ruff of plaited fold at the base of the disk.

Nierembergia Veitchii, a pretty little South American herb, of prostrate habit, with slender branching stems, obovate-oblong leaves, and bell shaped pale-lilac flowers having a very slender corolla-tube an inch in length; it was introduced by Messrs. Veitch & Sons from Tucuman.

Kœmpferia Roscoeana, a beautiful-leaved dwarf Scitamineous plant, long since introduced, and probably long since lost to our gardens. It has a pair of orbicular-oblong horizontal leaves, of a bronzy-green, zoned with pale green, and between

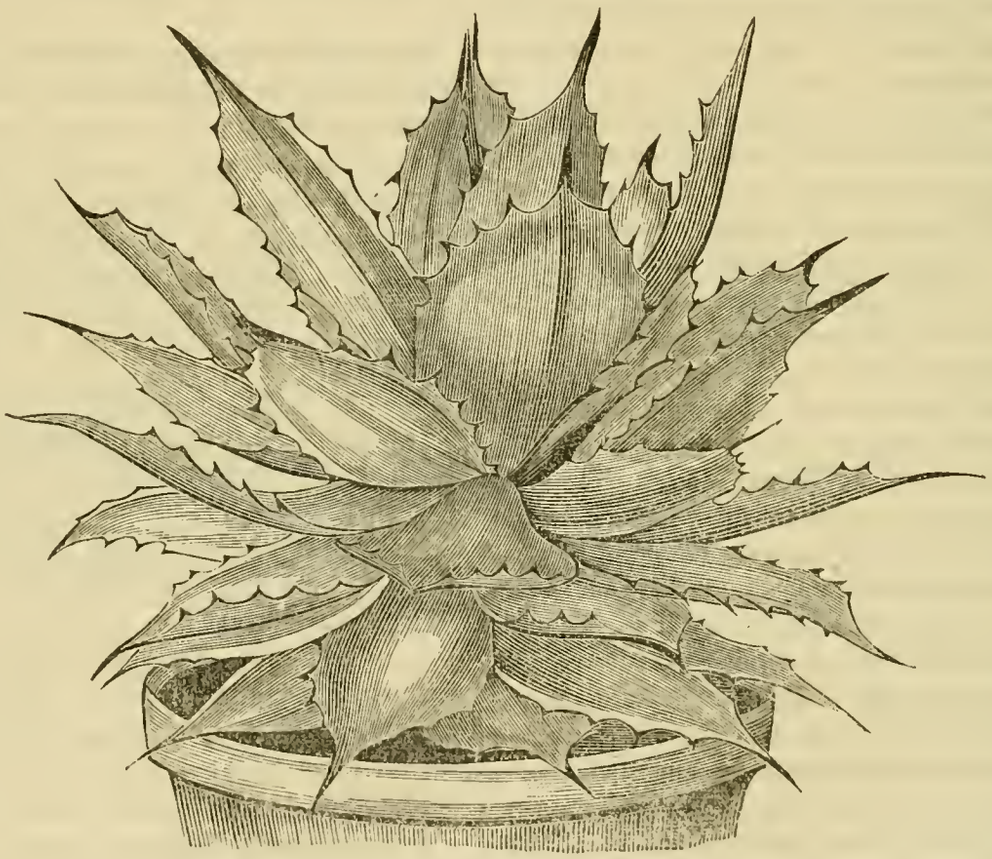
them sessile white flowers; and has been re-introduced by Messrs. Veitch & Sons.

Cœlogyne corrugata, pretty white-flowered epiphyte, introduced from India to the Royal Gardens, Kew. "It will not thrive in the East India house. but is quite at home in the coolest part of the Cattleya house." Its wrinkled pseudo bulbs are peculiar, and the blossoms are in three-flowered racemes, the lip being stained with yellow, and streaked with orange on the disk.

Cotyledon fasciculatis, a pretty succulent Cape shrub introduced by Mr. Saunders, and having obovate-cuneate cuspidate leaves, and scorpioid panicles of pendulous cylindrico-campanulate flowers, the segments of which are dull red, edged with green.

Glyptostrobus pendulus, from a plant which has this year flowered at Kew. "Its similarity to the Taxodium distichum is very striking. Like that plant it has pendulous spikes of male cones, with one or two female cones at the base of the spike, and sheds its ultimate branches annually, but it differs in the foliage not being distichous, in the scales of the cone not being peltate, but arising from one point at the base of the cone, and in the winged seeds. The habit, too, is very remarkable, owing to the great slenderness of the twisted stem, decurved branches, and pectinately disposed branchlets." It grows 40 feet high.

Helipterum Cotula, a beautiful West Australian annual everlasting, growing from 6 inches to 2 feet high, with slender branches, each terminated by a large white or yellow flower head, the white-headed form being the H. Cotula, and the yellow the H. citrinum of authors. The plant is gray with weak woolly hairs, and bears filiform leaves. It was introduced by Mr. W. Thompson.



Agave Verschaffeltii.—The whole family of "American Aloes," or Agaves, of which the Century Plant is a well-known member, are very popular. They make such picturesque objects in pots or tubs for the summer decoration of our grounds, and being nearly hardy, are very easily kept over in winter in cellars, or any out-of-the-way place, that every one admires them, and all who can add to the variety.

This new species has been recently added to Mr. Verschaffelt's collection at Ghent, in Belgium, and as Mr. Verschaffelt has correspondents in America, we hope soon to see it in some collections.

Mr. Verschaffelt says it is a dwarf and very leafy species, with a deep glaucous tint, and each leaf garnished with beautiful black spines.

Bolbophyllum reticulatum, a curious Bornean epiphyte, introduced by Messrs. Veitch and Sons. It has a prostrate rhizome, with solitary ovoid pseudobulbs at intervals, each bearing one largish, cordate ovate, pale green leaf, beautifully reticulated, the veins being marked out of a deep green color; the flowers are white closely streaked with purple lines, and grow in short two-flowered racemes.

Musschia Wollastoni, "a beautiful plant introduced from Madeira to Kew about 10 or 12 years ago, where it has since flowered annually in a cool greenhouse." It is a large-leaved under shrubs, with a naked stem, terminated by a crown of leaves, and pryamidal panicle, the flowers being yellow with a cylindrical tube shorter than the reflexed lobes. It is closely allied to Campanula.

The American Heather, is now considered by Dr. Seeman different from the European, and is named Calluna Atlantica.

Domestic Intelligence.

The United States Agricultural Society.—The Fifteenth Annual Session of this body has been held, and it has been well attended by the life members, every section of the Union having been represented.

Hon. B. B. French was re-elected President, and Major Ben Perly Poore was re-elected Secretary, with the old Board of Vice-Presidents. Hon. Marshall P. Wilder, of Massachusetts, the founder and the first President of the Society, was appointed a Commissioner to represent the Society at the Paris World's Fair, and at the Agricultural Exhibitions in Europe during the coming year.—*Washington Star.*

Norway Spruce as a Hedge Plant.—The following, from a letter received recently from Mr. C. R. Powell, of Sterling, Ill., gives the facts which decide me to set half a mile of it in hedge at Mendota, the coming spring, using plants two to three feet high, three feet apart in the row.

Mr. Powell says:—"I have seen some very beautiful Norway Spruce Hedge, while East, on the grounds of Ellwanger & Barry. It is a solid thing, and will turn any stock, even a rabbit. If people here would set out Spruce from two to three feet high in hedge, in four years, with good care, I would warrant them a hedge that would defy horses, cattle, sheep, and, in a year or two more, hogs.

"It has advantages over the Osage, in not shading the ground so much, is perfectly hardy, and a beauty forever. I am so well convinced of its reliability, that I think of setting fifty rods around my orchard in the spring."—Samuel Edwards, *in P. Farmer.*

[Can any one tell whether such a hedge would turn *horned* cattle?—Ed. G. M.]

On the Period and Ratio of the Annual Increase in the Circumference of Trees.—The following experiments were instituted in order to ascertain whether the production of wood in trees was more rapid during some portions of the growing season than others, and at what periods growth commenced and ceased in the species of tree chosen.

The Carolina Poplar (*Populus monilifera*, Ait.) was selected on account of its rapid growth, enabling me to easily note the increase of circumference each seven days.

The following table shows the result. For the sake of system, the same day in the week was chosen. In order to tabulate the figures, the same date is used for the three years; but as the same day fell on different dates, there is a difference of three days in each date. For instance, May 17 in 1863 is May 18 in 1862, and May 20 in 1866—the three years during which the measurements were taken.

1876.	1862. Ft. In.	1863. Ff. In.	1866. Ft. In.
April 12 (Male catkins in flower)			
" 15, ...			3·6¾
" 22, (Leaf buds burst) .			3·6¾
" 29, ...			3·6¾
May 6, ...		2·3	3·7
" 13, ...		2·3	3·7¼
" 20, ...		2·3½	3·7½
" 27, ...	1·10	2·3⅜	3·7¾
June 3, ...	1·10½	——	3·8
" 10, ...	1·10¾	2·3¾	3·8¼
" 17, ...	1·11	2·4½	3·9⅛
" 24, ...	1·11¾	2·4¾	3·9¼
July 1, ...	2·	——	——
" 8, ...	2· ¼	2·5¼	3·9¾
" 15, ...	——	2·5⅝	3·10⅛
" 22, ...	2·1½	2·5⅞	3·10½
" 29, ...	2·2	2·6½	3·10⅜
Aug. 5, ...	2·2¼	2·6¾	3·10¾
" 12, ...	2·2½	2·6¾	3·10⅞
" 19, ...	2·2¾	2·6¾	3·11¼
" 26, ...	2·3	2·6¾	3·11¼
" 31, ...	2·3	2·6¾	3·11¼

From these figures it appears the tree increased in growth only during the three months between

the middle of May and middle of August, and that the ratio of growth is much greater during the month between middle of June and middle of July than during the month preceding and the succeeding month.—THOMAS MEEHAN, in *Proc. Acad. Nat. Sciences of Philadelphia.*

THE ROT ON THE FRUIT OF WILD VINES.—We notice in the Western States the wild Grape rots excessively in its wild state on trees, without any management whatever. In scores, perhaps hundreds, of rambles in the woods, during the past fifteen years in this State, we have found the Grape partially or completely rotted on the trees, alike in the vicinity of cultivated fields and in the depths of the "grand old forest."

We have repeatedly called attention to this fact—have exhibited bunches of the fruit and branches of the vine—have found it on the hill-sides and in the valleys; but yet we have no key to the cause. It is in some seasons worse than others. We have found the rot in the woods when there was none in our vineyard, although not two hundred yards distant; and this season we are trying to dig around and prune a wild vine in a tree that has rotted every year it had fruit, for eight years, to see if there is any thing in management.—W. MUIR, in *Colman's Rural World.*

Foreign Intelligence.

RED SPIDER.—Red spider is; perhaps, the most destructive of all the insects which the horticulturist has to combat. Being small, and confining its first attacks to the under side of the leaves, it is not easy of recognition in its early stages of development; but in a very short time foliage attacked by it assumes a sickly, yellowish appearance on the upper surface, and the parts immediately over the spots where the insect is at work become dotted with a number of minute whitish specks if the leaves are those of the Peach or Fig tree; but if they are those of the Vine, the specks are of a yellowish hue. These specks or dots increase in size until the whole leaf acquires a yellow and mature appearance, and its powers of exhalation and inhalation being destroyed, it falls off. The small specks or dots on the upper surface of the leaves are the best evidence of the presence of red spider; and if the under side of such leaves be examined, there will be observed between the principal nerves a number of minute specks or dots. These, on being touched with the point of a pin, will be seen to move about at a rapid rate, and, if observed with the aid of a lens, they will be found to be in constant motion, busy on that part of the leaf which they have, for greater security, enveloped in a network of the finest threads conceivable. If measures be not taken to check the spread of the insect on its first appearance, it will rapidly wrap the leaf in a fine network, and will not cease its work of destruction until the juices of the leaf have been so completely exhausted, that it becomes totally incapable of performing any of its functions, and falls off.

It is well to remember that the leaf of a Vine or other plant may have every appearance of being attacked by red spider, and yet that the insect may not be present; for the upper surface of a partly scorched leaf has much the same aspect as one suffering from red spider; but, instead of specks or dots, scorched leaves usually exhibit blotches, besides, in addition to the dots on the upper surface, there are others corresponding to them on the under surface, and when there are both, and those on the under side move when touched, it is certain that the leaves are not scorched, but infested with red spider.

Though the insect is termed the red spider, scarcely one upon a leaf will be found of that color, most of them being of a grey, inclining to a reddish-brown, and having whitish heads and legs. The color and size of the insects vary in the case of different plants, for on some they are much brighter in color and larger than on others.

The red spider attacks a great variety of plants, but chiefly those which have large glossy leaves and require a large supply of water; and yet it does not exclusively confine itself to the smooth-leaved plants, but is as partial to the Egg Plant as to the Violet or Strawberry. It appears to be constant in nothing but in showing the same tokens of its presence, and in this respect it varies but slightly, if at all. Not being an entomologist, I must leave a full description of the insect to those more qualified for the task; and here I may observe that a text-book on insects injurious to garden crops, published at a moderate price, would be a boon to many, who, like myself, are willing to learn and yet cannot obtain a work on the subject, except at a cost totally disproportionate to their means.

Of red spider I am only acquainted with two kinds, or species. 1st. The small and very active one that attacks Vines, Melons, and most cultivated plants grown under glass or in warm situations outdoors. 2d. A comparatively large one, which I have only found on the Gooseberry and Ivy. I

have known the latter attack Gooseberry bushes with such severity as to make them look as if they had been scorched. This is very commonly the case on light gravelly soils.

Red spider destroys the vitality of the leaves, checks growth, and when its attacks are severe, altogether arrests it. It prevents the flowers expanding or attaining their perfection, as well as the swelling and maturation of the fruit, and impairs the well-doing of the plant. It likewise, by stopping growth, limits the action of the roots, converting a vigorous plant into one which is sickly.

Predisposing causes innumerable have been assigned for its attacks, but the principal appear to a dry atmosphere and a high temperature, with too little air at night. Some entertain the opinion that no plant would be attacked by insects if it were healthy; but I have not yet seen a plant, however healthy to all appearance, that did not become infested with some insect. The green aphis is equally partial to a strong shoot of the Rose as to a weak, drawn shoot of the Pelargonium, and it is the same with most insects; come they do, and whatever they attack is checked in growth, and more or less reduced in health, vigor and fertility. In whatever state a plant may be attacked, whether weak or strong, the effects are the same; it becomes impaired in health and vigor, and, when freed from insects, it regains both. Surely, this does not show that constitutional ill-health and impaired vigor are essentials to insect attacks. I believe that they are not induced so much by any peculiar condition of the plant as by the atmosphere being favorable to the development and increase of the insects. Make a plant as unhealthy as we may, it will not be attacked by the insect peculiar to it until we also produce an atmosphere favorable to that insect.

That the red spider delights in and is encouraged by a dry atmosphere, none having experience of it will doubt; and it is most abundant where the heat in houses is artificially derived from flues or hot-water pipes. I can also affirm, from many years' daily observations, that where there is a plentiful supply of atmospheric moisture, a temperature from fire or natural heat no more than the plant requires, and thorough ventilation, that the attacks of red spider are not grievous. Any one having experience in forcing Vines, Melons, &c., knows how much more liable to the attacks of red spider are the crops obtained by employing great artificial heat than those to which less artificial heat and more air are given; nor can those who wash or syringe their Peach trees have failed to find how free of red spider such trees are, whilst others not syringed are literally eaten up if dry weather prevail. A dry atmosphere, too high a temperature, especially at night, and insufficient ventilation, are the conditions under which red spider presents itself; but there are cases in which it will appear when none of the conditions favorable to its existence are present. Still, the fact of the insect existing may be taken as evidence that the air is too dry, too hot, or imperfectly ventilated.

The great agent in the destruction of red spider is water, which may not inaptly be termed its natural enemy. Water forcibly driven against foliage infested with red spider, will free it of the pest, and that is the best means to adopt in the case of plants which will not be injured by its application. Syringing with soft water is the best remedy, as well as preventive, which I have tried. Whenever a plant shows unmistakable signs of the presence of red spider, it is well to syringe it forcibly, directing the water against the under side of the leaves, and this is best done in the evening at the time of shutting up the house, or, if the house is not closed, or the plants are exposed, after the sun has declined in power. Bear in mind that syringing once or twice is not of any great avail, but it must be persisted in until the trees are cleared. The only cases in which the uses of water for the destruction of red spider cannot be recommended, are when the trees or plants are in flower, for then a dry atmosphere may be desirable for the setting of the fruit; and when a tree is ripening its fruit or wood, then a free use of the syringe may not be advisable. When syringing can be adopted, it will be found the very best means for the prevention and destruction of insect enemies. It is conducive to health and vigor, frees the leaves of dust, and lessens the evils of an artificial or dry atmosphere. It is objected to syringing that it is not natural, and cannot be otherwise than injurious, it being sufficient if the atmosphere be kept moist by sprinkling the floors, walls, &c., and by the evaporation of water from troughs upon the hot-water pipes. Such may be the case, but I have failed to experience it, having seen the foliage of the Vine brown and ready to fall off by the time the fruit was ripe, and Peaches shedding their leaves before the wood was mature.

When the syringe cannot be used, then we must look elsewhere for the means of destroying the red spider; and here I would discriminate between plants which can, and others which cannot, bear an application destructive to the insect. I may instance the Vine and Melon as plants to which a so-

lution of soft soap, at the rate of two ounces to the gallon, cannot safely be applied, and yet soft-soap water of this strength is effectual, and not injurious to the foliage of most trees and plants, when applied with a syringe so as to thoroughly wet every leaf on both sides. Three applications on alternate evenings will be sufficient to destroy a whole generation of red spider. The Vine, Melon and Cucumber are the only plants which I have found injured by it, for it stains the fruit of the first, and disfigures the foliage of the other two.

[*To be Continued,*]

PROPAGATION OF ANÆCTOCHILUS.—The *G. Chronicle* for February recommends that "Anæctochili should now undergo the preliminaries necessary to their intended propagation. Carefully turn each pot or pan upon its side, and with the handle of a budding-knife or other smooth implement clear away from the surface of the soil, around the plants, any Moss or fungoid growth likely to hold moisture. returning the plants to their original positions, where they should remain, without further watering, until the soil has become moderately dry, when it will be safe to proceed. With a keen edged knife sever in two the older or back portions of any rhizomes which will admit of it. Endeavor to have a root attached to each piece, being careful not to operate upon the rhizome too near the growing shoot. Cut a portion off one of the two ends formed by each wound, and, in order further to aid the process of healing, keep them as dry as possible for a week, after which the ordinary treatment may be continued for a short time. These remarks will apply equally well to Goodyeras and similar plants. A few other Orchids, such as Oncidiums, Cattleyas, &c., may be induced to push latent buds by a similar severing of older growth from the young. It will not always be safe, however, to cut in two the main stems nearer than two leaves from the younger growth. Many Orchids, which may not have needed potting this season, will be benefited by having a little fresh peat and sphagnum placed around the younger portions of them; but care will be needed to see that no tender buds at the base of these are buried too deeply."

Horticultural Notices.

FRUIT GROWERS' SOCIETY OF PENNSYLVANIA.

This Association held its annual meeting at Harrisburg, on the 16th, 17th, and 18th of January. Notwithstanding the heavy snows which blocked the Railroads, and prevented many from coming who had expected to attend, there were from seventy-five to one hundred members present, and a very useful session was the result. Instead of debating the question of varieties pretty much altogether, which generally results in overturning the votes of previous years, and according to the attendance of those who hold peculiar views, the discussion took a more general and practical turn. What was said, and by whom said, would fill a large volume, as will be readily understood when the many heads are considered; we have therefore been able to give only the general sense of the meeting so far as we could gather it.

1. *Have we learned anything certain since our last meeting about Grape failure*? Caused an animated discussion. Some thought grapes did better near large bodies of water than elsewhere; others spoke of disease under just such circumstances. The copings to trellises recommend by Mr. Saunders some years ago seemed to recieve more favor than heretofore with members, for the prevention of mildew—beyond this there were no new ideas thrown out.

2. *Have Grapes been found healthier when pruned severely, than when but lightly pruned?* The opinion seemed to predominate that there was no difference in either case.

3. *Has any system of training the Grape been found better than another*? Some thought they had better results from vines trained over buildings than along wires or fences,—others that the trellis system was better than stakes; but after carefully weighing what was said by all, we do not think the meeting at all decided that any one system had any great superiority over another.

4. *Has anything new or valuable with regard to pruning or training the native Grape been learned during the past sixty years*? Was received with much merriment by those who have been filling their libraries with all the new Grape books; but after a lively discussion it was concluded that nothing had been learned.

5. *Is not the Pear the most certain of all the tree fruits of Pennsylvania*? was decided in the affirmative so far as standard trees are concerned, but it was at the same time evidently the opinion of the majority, that although it was a good fruit to grow for ones' own use, as certain in most seasons to produce crops of fruit, it was not a profitable fruit to grow for market purposes. Some of the members however had great regard for the Pear from this point of view.

6. *Have dwarf fruit trees on the whole proved advantageous to cultivators*? The majority seemed to be in the negative, except as regards the Cherry on Mahaleb stocks; which some thought ought not to be classed among dwarfs.

7. *Are the hardier and inferior Raspberries worth growing to the exclusion of superior varieties which require more care*? As a question of profit it was thought they were, as there were more per-

sons who would give an inferior price for a good fruit, than there were those who would give high prices for those a very little better; but for ones' own use where nice calculations of profit and loss were not to be set against individual enjoyment, the sense of the meeting seemed to be that the better and tender kinds of Raspberries should be encouraged.

8. *Are any of the autumn fruiting Raspberries worth growing as such?* The Belle de Fontenay and Catawissa were well recommended when severely pruned in spring, and when the innumerable suckers of the first named could be hoed out through summer.

9. *Are any varieties of the foreign Gooseberry worth growing in Pennsylvania?* Decidedly no, it was voted.

10. *What varieties of Peach are most exempt from curl?* It was decided that none were,—but the conclusion seemed to be that the cause of curl was cold winds or weather acting on the young foliage, and that if trees were planted in aspects where they would not prematurely foliate, in spring have less curl. Another interesting fact brought out in the discussion was, that the curl is a much more serious enemy to the Peach grower than generally supposed. It was represented that it was the injury to the leaf which caused the young fruit to drop. This view was ably presented by several speakers.

11. *Is it more profitable to grow Strawberries in hills, in rows, or in beds?* There were so many advocates for different systems, all of whom had found their plans more profitable than the others, that the conclusion would seem to be that which best depends on the soil, variety, or method of cultivation. For hand culture in gardens close rows with a foot or so of clean surface between the rows had favorites. In sandy soils some favored growing them in beds. The pure hill system, which means cutting off all the runners, did not find many advocates.

12. *Is winter covering of Strawberries a benefit?* Some, especially Mr. Parry thought it a great benefit,—others did not think it paid for the expense, while a few thought it a decided injury.

13. *What are the comparative merits of the various methods of propagating the native Grape?* Green wood cuttings, eyes, pot grown vines, early starting and then putting out, out door raising altogether had numerous enemies and able defenders. It was contended that there was nothing radically wrong in any one of the methods in use, but that where bad vines resulted it was to the manner of carrying out the system, and not the system itself. Each advocate contended that by his system he could produce vines with many eyes, of strong ripe wood and plenty of roots, and the sense of the meeting seemed to us to be that when such vines were raised, it made no difference what system they were raised by.

17. *Have any varieties that have been introduced the past ten years, and extensively tried, proved likely to be permanently valuable?* Although the meaning of this question was pretty well undersrood, it was difficult to get anything in under it. The Wilson's Early and Kittatinny Blackberry were named, but objected to as not having time enough to be "generally" tried. Concord Grape was thought to be out of rule, as having been out "longer than ten years;" we can only say that Concord grape, Stump the World and Hale's Early Peach, Versailles Currants, Summer Hagl e, Ridge Pippin, Cornell's Fancy Apples, Rutter Pear, and Philadelphia Raspberry, received commendation as very good things to have; and Wilson's Early and Kittatinny very promising new Blackberries. Doyenne du Comice and Dana's Hovey named Pears of promise.

18. *Is it profitable to keep an orchard entirely as such or to grow other crops with it?* It was admitted that as a rule trees are healthier and longer lived when well cared for in grass, although some instances of longevity and regular productiveness can be adduced to favor continually stirring of the surface; but it was contended it was generally *more profitable* to use the ground for other purposes during the time the fruit trees were growing together, even were the trees not quite so good in the long run, some few though it better to plant trees closer together at first, and use only as an orchard exclusively, but the sense of the meeting, as a question of *profit*, seemed to be in favor of using the first few years of an orchard for other purposes.

19. *Is transplanting fruit trees better done in the fall than in the spring?* Brought one of the most interesting discussions it has ever been our pleasure to listen to. A great many cases of loss from "fall" planting were instanced, but it afterwards appeared these were *winter* or November planted;—many facts in proof of October planting were given. The general sense of the speakers seemed to be that about the *fall of the leaf* was the best time, the next best *just before* the buds burst in spring.

Late fall, or it may be said early winter, was deprecated, as also was being in too much of a hurry in spring.

20. *Is pruning at transplanting a benefit or not?* It was the experience of every speaker that it was.

21. *Is pruning injurious to the vital strength of*

the tree? was argued in the affirmative by our reporter, and ably controverted by others. The meeting seemed undecided on the point.

22. *Has shelter been found of such marked benefit to orchards, as to make it profitable to plant artificial belts of Evergreens*? It was argued by some that what was gained to the trees by shelter, was lost to the fruit by the encouragement given to insects to breed. Then it was contended that Evergreens encouraged birds which eat the insects; and the opposition thought the fruit as well as the insects were eaten by the birds.

23. *What are the best Evergreens for the purpose of protection*? Norway Spruce, White Pine, Scotch Pine and Austrian Pine were named.

24. *Which is the most profitable of all the small fruits*? brought so many discordant views, that we concluded from the remarks of the speakers that it depended on too many contingencies to be an answerable question.

25. *Are profitable market fruit, the best generally for amateurs to grow*? Some thought it best when people had little time to spare to have kinds that took little care to grow; others seemed to think better take time, and have the best or none. It seemed to be conceded that the easiest kinds to grow were not generally the best to eat.

26. *Are seedling fruits of Pennsylvania, better for Pennsylvania than introduced varieties*? This was warmly argued both ways, some contending that almost all fruits grew better as they travelled south; others pointing to Pennsylvania Pears which were better in Pennsylvania than any others,—Seckel, Brandywine, Rutter, Julienne, and several others were named.

27. *Is Pennsylvania a better fruit growing State than any other*? It was contended that while a few things did a little better in northern states, and some few in the south,—yet as great a variety of fruits could be successfully and as profitably grown as in any State in the Union; but we did not think the meeting concluded it to be better than some other States west, and some thought Delaware or Maryland better than Pennsylvania.

28. *Is any part of the State more favorable for fruit growing generally than another*? Thought not.

29. *Have any new methods for the cure or prevention of diseases in fruit trees been discovered since our last meeting*? Did not elicit much we thought particularly new.

30. *Have any disease which have appeard in certain districts shown any natural tendency to disappear*? On this, also, we could not learn any thing decided from the gentlemen who spoke.

31. *Will insects when deprived of what appears to be their natural food, adapt themselves to other varieties*? It seemed the general opinion that insects had this power of preserving their race, hence it would be no benefit to cut down one's cherry trees, merely because curculios bred in the fruit.

33. *What is the best method of keeping fruits for those who have no regular fruit houses*? The discussion turned principally on apples and grapes. The former it was recommended to let them sweat first, and then put carefully in barrels, and keep as cool as possible so as not to freeze; the latter in boxes, with paper between each layer in the box,and keep "neither very hot or very cold, very damp or very dry." It was thought important not to put more than a dozen or so of bunches in each box.

35. *What fertilizers are as a general rule found most profitable to the fruit grower*? Produced a long and animated discussion, the majority who spoke prefering common barnyard or stable manure to any other, even at a greater labor and expense than is generally thought profitable. In other words, that artificial or special fertilizers are not so valua- as they are generally thought to be.

36. *Have there been any valuable implements to the cultivators of the soil been introduced the past few years, that deserve to be better known*? The digging fork was referred to, but regrets expressed that makers could not make them as little liable to break in heavy work as the spade, also one gentleman spoke of a hand cultivator which worked by pushing instead of drawing after him, which he thought an advantage.

38. *Will it pay the commercial grower to erect glass houses for the hastening the maturity of his fruit crops*? Was well discussed both ways. Some arguing that with railroad facilities it was cheaper to buy early land south for the purpose of early supplying the great markets, others thought the saving of freight and superior quality and freshness more than made up for other advantages.

It will be seen from the vast amount of topics discussed, that the meeting was a much more valuable one than is usual with such institutions, and it will be no disparagement to any other persons to say that much of this was owing to the Chairman of the business committee Mr. Wm. Saunders and to the excellent President, D. W. Gross Esq., who exhibited the tact so much needed in a good Chairman of seeing where at once to draw out what information the meeting possessed, and when the subject was exhausted. Against his own urgent request, he was re-elected for another term.

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Hints for April.



FLOWER-GARDEN AND PLEASURE-GROUND.

Arranging flower beds affords room for a display of taste. Narrow, thin beds as a rule, have better effects than thick or heavy ones. Edgings to beds are common. The evergreen Ivy is good—so is Periwinkle. The variegated, large-leaved Periwinkle is a treasure. Daphne cneorum is also good—for large beds, Shrubland Pet Rose Geranium is very effective. The new Iresine Herbstii will, no doubt, prove a very popular bedding plant,—better even than Coleus Verschaffeltii. The old tribe Scarlet Geraniums make splendid American bedders, Lord Palmerston and Stella are two of the best, but yet scarce and high priced. Lanata, Rosamond, Christine, "Really Good," Chance and Lallah, are six of the best bedders. The old Hark-away is an enormous bloomer, though for the single flower poor enough; it is one of the best bedders.

Place broad-leaved evergreens where they will get no sun in winter, yet away from where the roots of trees will make the ground dry in summer. Deep soil, but shallow planting, is all important for them. In transplanting, take care of the roots. Good roots are of more importance than good "balls." Balls of earth are useful in keeping fibres moist; but don't sacrifice the best fibres five or six feet from the tree for the few fibres in the ball at the base. When roots are rather dry, after filling a portion of soil, pour in water freely. After all has settled away, fill in lightly the balance of the soil, and let it rest for a few days. This is as a remedy, not as a rule; for watering this way cools the soil, ultimately hardens it, and in other respects works to the injury of the transplanted tree.

Unless inside of a round ring, or circular walk, don't plant trees or shrubs in formal clumps. They are abominations in the eyes of persons of taste. Meaningless irregularities form the opposite extreme. Remember, "art is nature better understood."

In your flower-beds, if the plants sickened last year, change the soil. Renovated earth is renewed health to consumptive flowers. Sow Annuals as soon as the ground is warm. Too early sowing and deep covering rots seeds very often. This is frequently the cause of one's seeds being "bad." Prepare flowers in their winter quarters for the summer campaign, by gradually inuring them to the air before setting out finally. Set out when all danger of frost is over. Don't set out a plant with a dry ball; but water well while in the pot an hour or so before.

Prepare ground for planting. Soil loosened two feet deep dries out less in summer than soil one foot deep. Rich soil grows a tree larger in one year than a poor soil will in three. Under-drained soil is cooler in summer than soil not under-drained. The feeding roots of trees come near the surface; therefore plant no deeper than necessary to keep the tree in the soil. If there be danger of its blowing over, stake it, but don't plant deep. One stake set at an angle is as good as two set perpendicular. Straw or mat set around the tree keeps the bark from rubbing. Large stones placed around a transplanted tree are often better than a stake. They keep the soil moist, admit the air, and encourage surface roots. Shorten the shoots at transplanting. This induces growth, and growth produces roots; and with new roots your tree is safe for another season. Unpruned trees produce leaves, but little growth, and less new roots.

VEGETABLE GARDEN.

Few things mark a well-kept garden better than an abundance of all kinds of herbs. Now is the

time to make the beds. Sage, Thyme and Lavender, grow from slips, which may be set in now precisely as if an edging of box were to be made of them. They grow very easily. Basil and Sweet Marjoram must be sown in a rich warm border.

South of Philadelphia, the more tender kinds of garden vegetables may now be sown, beans, corn, cucumbers, squashes, ect., that it is not prudent to plant in this latitude before the first of May; and tomato, egg-plants, etc., may also be set out in those favored places. Cucumbers, squashes, and such vegetables can be got forward as well as tomatoes, egg-plants, etc., by being sown in a frame or hotbed, and potted off into three inch pots. They will be nice plants by the first week in May. Rotten wood suits cucumbers and the squash tribe exceedingly well as a manure. Tomatoes and egg-plants that are desired very early are best potted, soon after they come up, into small pots. They can then be turned out into the open air without any check to their roots. Of course, they should be gradually inured to the open air—not suddenly transferred from a warm and moist air to a very dry one.

Early York Cabbage for early use should be set out early in this month. It is an excellent plan to make the holes with a dibble first, where the cabbage is to be set; then fill up the holes with manure-water; and, after the water has soaked away, set in the plants. It is rather more laborious than the old way; but the cabbage grows so fast afterwards that it pays pretty well.

It is not a good plan to cut all the asparagus as soon as they appear. A few sprouts should always be left to grow from each, to strengthen the plants.

Celery, with most families, is an important crop, and should be sown about this period. A very rich moist spot, that will be shaded from the mid-day April sun, should be chosen; or a box in a frame by those who have the conveniences.

Salsafy and Scorzonera like a damp rich soil.

Bean poles may be planted preparatory to sowing the Lima bean in May. Where bean poles are scarce, two or three hoop-poles, set into the ground one foot from each other, and tied together at the top, make as good a pole, and perhaps better.

Dwarf beans should have very warm and deep soil,—sow them only 2 inches apart. The Valentine is yet the best early, take it all in all.

Peas should be sown every two weeks for a succession—do not make the soil very rich for them.

Lettuce, for a second crop of salad, should be sown about the end of the month. The Drumhead cabbage is usually sown for a summer crop; but the old kinds of Cos lettuce would, no doubt, be found very valuable in rich soils.

FRUIT GARDEN.

In planting dwarf Pears, it is very important to have them on a spot that has a moist subsoil, either naturally, or made so by subsoiling or mixing some material with the soil that will give out moisture in dry weather. Trees already planted on a dry gravelly-subsoil, should have a circle dug out two feet deep, and two or three feet from the tree. This should be filled up with well-enriched soil. If the dwarf Pear does not grow freely, it is a sign that something is wrong. It should at once be severely pruned, so as to aid in producing a vigorous growth.

Strawberry beds are very frequently made at this season, and though they will not bear fruit the same year, are much more certain to grow, and will produce a much better crop next year than when left till next August. Though it is a very common recommendation, we do not value a highly manured soil. It should be well trenched or subsoiled; this we consider of great value. In rich soils there is too much danger of having more leaves than fruit.

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes, from a pressure of other work, some valuable scions have been left on hand to late to work. It may be interesting to know, that if such scions are put into the ground much the same as if they were cuttings, they will keep good for six weeks or two months, by which time the bark will run freely, when the scions may be treated as buds, and will succeed just as well as buds taken from young summer shoots.

Buds that were inoculated last fall should not be forgotten, but as soon as vegetation has pushed forth, the buds should be examined, and all other issues from the old stock taken away. It may also be necessary to make a tie in order to get the young shoot of the bud to go in the way from which you would not hereafter have it depart.

Above all, do not allow the month to pass without posting yourself afresh on the various methods recommended for destroying insects, or preventing their attacks. The advantage of a stich in time is never more decided than in the great struggle with fruit destroying insects. A mass of information on these points lies scattered through our past volumes, that will well repay a careful reperusal for the purpose alone of refurnishing ones ideas in that line.

GREENHOUSE PLANTS.

To turn all the plants out in "the first week in May," without reference to any contingency, should not be done. All plants should be early inured to the open air—the ventilators and sashes should be kept open as much as possible, yet by degrees.—Sudden changes of temperature engenders mildew, and a species of consumption fatal to many plants. The hardiest things should be placed out first, in a somewhat shaded spot, and if possible on a bottom of coal ashes, to keep out worms—Azaleas and Rhododendrons, Daphnes and Camellias may go out when their growth is finished; no spot will be too shaded, provided they can get an abundance of air all around. If plants are well rooted, and have not been repotted, they should be so before setting out, as they will, otherwise, suffer at times for want of water. It is objectionable to turn out every thing, leaving the greenhouse for the season like a lumber loft—such as will stay in advantageously should be left, and the idea is becoming prevalent that Cape and hard wooded things are better in than out.

Abutilons, Habrothamnuses, and Cestrums, indeed many similar plants, if taken out of their pots, turned out into the open border, and lifted and repotted early in the fall, will make fine growth and do well. As fast as Hyacinths in pots are done flowering, turn them out into beds. Calceolarias should be kept in the coolest part of the house, and have a good supply of water; as they frequently die after flowering, cuttings of desirable kinds should be taken off now; if they show signs of flowering before fall, do not allow it. Cinerarias should receive the same attention, as they also die out after flowering. As soon as the Chrysanthemums, planted last month, have shot forth, take cuttings for next season's show; they strike very readily in sandy soil, in a somewhat moist and shady situation. Dahlias need not be put out before the second or third week in May; they do not like the scorching heat of summer, and if put out early become stunted and do not flower till later. Pelargoniums should have all the light possible till they begin to open their flower-buds, when they should be somewhat shaded and kept cool, by this the flowers are rendered finer, and last longer. Everblooming Roses, grown in pots, should be pruned in a little after their first flowering, kept a little drier for a week or so, then repotted, and placed where desired out of doors; they delight in a rich loamy soil, and are benefited by manure water while growing; those who have not a collection should begin; there is no finer class; six of the best for pot culture may be *Souvenier de la Malmaison*, salmon white; *Devoniensis*, pale lemon; *Hermosa*, rose; *Agrippina*, crimson; *Lyonnais*, pink; and, as a free-blooming white, *Oels*.

Justicias, Aphelandras, and Acanthaceous plants which have been the mainspring of beauty in this department most of the winter and spring, and have now done flowering, should have the lightest and driest part of the house, to ripen well their wood, preparatory to being cut back and repotted for next season's flowering. The Achimenes and Gloxinia will be coming on to take their places; they like a moist heat circulating among their roots, and do well with much rough material in the soil. Pentas carnea, or similar soft-wooded plants grown for flowering early in the fall, may still be repotted if the pots become filled with roots. As the weather becomes warm, shade the house a little to keep the sun from scorching. We like to see all plants under glass have a slight shade in summer time. Water in the morning, keep the syringe going in the evening, keep the temperature regular between 60° and 70°, and all will go well.

Communications.

PHILOSOPHY OF PRUNING.

BY DR. J. STAYMAN, LEAVENWORTH, KANSAS.

Read before the Pennsylvania Horticultural Society, February 5th, 1867.

To fully discuss this subject we should properly understand the physiology of plants, because the functions of vegetable life are governed by certain principles, as much so as in animal life.

The different parts of a plant have their offices to perform which are essential to their healthy existence. The destruction or derangement of any of those parts deprives them of the ability to perform their duty well for the want of those parts, because no part can perform the office of another. If our views be correct, it then follows that if we wish to produce a certain effect it must be done in harmony with the above principles. This cannot be done unless we know what each part of the organism performs and what relation it holds to each other, and the surrounding influences.

Every seed preserves the principles of life and retains organic matter to nourish the young plant, and when placed in congenial soil germinates. Its radicle attaches itself to the soil, and the germ seeks the atmosphere; the cotyledons are developed and the elementary plant is established by virtue of in-

herent life. It is born into a new state and its conditions are changed, the radicle spreads out in various directions to seek nourishment, but it has no power to build up or solidify its own frame without the rays of the sun.

The plumule extends itself and forms the trunk with its numerous branches and leaves, but it is only built up by virtue of the sun's rays, and the rays of the sun have no power of building up the tree without azote furnished from the soil, and the azote cannot be supplied to the tissues without the buds. Hence within the *germ* lie the vital force when acted upon by the sun's rays calls into activity the functions of the plant. If these are destroyed the plant immediately ceases to grow, but may however retain vitality long enough to form new buds, but if not it will soon languish and die.

Azote forms the rudiments of the plant, which cannot be developed without, it and stimulates the leaves to decomposed carbonic-acid, and gives that healthy green color and vigorous growth to vegetation.

The sun furnishes heat and light, and the atmosphere carbonic-acid, and the dark green part of the vegetable decompose it, extracts the carbon which unites with the water supplied by the roots, thus forming "numerous and different compounds,—wood, starch, sugar, oil, wax, balsams, essences, both fragrant and offensive, delicious fruits and violent poisons, whose infinite variety transcends the dreams of imagination."—Thus it appears we have a succession of causes within the plant, which are necessary to the growth of the tree, the *germs or buds* being primary, and we have also a chain of conditions independent of the plant, the *sun* being primary.

The terminal buds are absolutely necessary for its rapid growth, as they are the prime conductors of electricity. The same is true with the roots: they spread out in the direction of the greatest moisture to conduct the current off rapidly, at the same time return the fluids containing the elements from the soil which are deposited in the different parts of the plant by chemical affinity. The bark, buds and leaves decompose the gases which are condensed, diffused and solidified in proportion to the amount of heat the plant absorbs. By this means the organism is built up by cells elongated in the direction of the extremities by electrical force. If it were not for this power they might expand in width instead of length. When this force ceases to accelerate their growth, they then commence to swell their buds instead of lengthening them, which produces fruit-spurs and fruit. This takes place for their *permanent good* only at their *natural maturity*. If these buds are destroyed by cutting them off or pinching-in, the next buds to the injured ones push forward to perform their office, while they are doing so the growth of the plant is checked until new buds take their place or those left are called upon to perform extra duty. This *check of growth* is a *loss of time* which can never be recovered.

Now as the leaves, buds and bark absorb from the atmosphere more than one-half the bulk of the plant, they not only hold an important relation to its health, vitality and constitution; but they also govern its growth, form, and deposites, upon these depend its distinctness and identity, which is demonstrated by budding and grafting. By virtue of their substance and color the plant becomes not only well organized, but healthy and productive.

Whatever may be the exciting causes of mildew, leaf blight, sun scald, &c., it is evident that it is characteristic of the *variety* and not of the *species*. As it is entirely cured or eradicated by giving it the foliage of a variety that is exempt, by budding or grafting. Thus proving conclusively that the defect is in the leaves, buds, and bark, and not in the roots and atmosphere. It is true there are some apparent local exceptions, for those defective varieties succeed at those places tolerably well for a while, but not as well as the healthy.

Having briefly considered the leading functions of vegatable life, and the relations they hold to each other and external objects, we shall now contemplate the application of those principles in practice.

As every plant has a particular form of growth endowed upon it by nature, and the foliage controls the form and deposites, it should be preserved unmolested that it can perform its duty. We must admit that nature has endowed every plant with a particular form which is necessary to its health, longevity and productiveness; or else nature is a failure in impressing it with peculiarities, which are inimicable to its existence. We cannot admit the the conclusion for vegetable life has had a primary existence, and fulfilled its functions independant of man.

Therefore the pruning of a tree is inexpedient, because it has a restraining influence and changes its natural form, and should not be practiced for that object. Restricting the sphere of vegetable action by whatever process has a deleterious tendency, and hastens its destruction.

Consequently the pruning should be only used as a remedial agent, in overcoming injuries and removing unnatural obstructions, and deformities, and

plants shonld be placed under proper cultivation, and congenial influences, and they will arrive at maturity at a specific period in harmony with their nature; and be healthy and live to a long *old age*. In illustration of these principles place plants in the full rays of the sun under favorable circumstances, and they will have a fine lively green color, and be healthy, but if placed in a dark room, they will lose their color and become sickly, and if light is let in from any point they will extend themselves in that direction, and grow slender, and become weak.

If seeds are planted in open space with free access of light and air, in congenial soil, they will grow and the plants will assume their natural form and grow stocky without the *pruning-knife*, and have a fine lively green color and be healthy; but if planted in a thicket, they will grow slender, and if cut back to make them grow stocky, it not only checks their growth, but deprives them of the ability to make growth by destroying their absorbing surface, and if the practice is often repeated, they become pale, sickly, and soon die.

If we prune a tree to hasten its maturity, we retard its circulation and impede its growth, upon the same principle as working it on a dwarf stock; and a less quantity of fruit is produced early at the cost of the vitality, constitution and longevity of the tree.

So, in whatever respect we restrain the growth and natural form of a tree to hasten its maturity, we strike at its vitality, and hasten its destruction.

Having briefly considered the philosophy, theory, and practice of pruning, and its bearing on the action of vegetable life, we shall now endeavor to give the result of our own experience:

Many years ago we attempted to carry into practice the popular book-theory of pruning, but the many changing circumstances deprived us of seeing the final result of our experiments; yet we saw effects which we could not then explain or reconcile with the theory. Finally we cut back in the nursery about one half of our one year old apple trees, supposing at the time it would make them grow more stocky; but instead of doing so it retarded their growth, and they were neither as large or stocky as those not cut back.

We transplanted some of those trees cut back in an orchard, when four years old, by the side of some one year old trees not cut back, and never pruned, and the result is the one year old trees are the most stocky, and have bore the first and most fruit.

In the Spring of 1860 we reset over 100,000 trees one, two, and three years old, after pruning the roots and "*balancing the tops;*" the result was we lost over 90,000, while another party, at the same time, by our side, reset 20,000 trees of the same ages, *very slightly pruning* them, and not losing more than 5 per cent.

Having been present, and witnessing both of these operations and the results which followed, we could not attribute this great difference of success to any thing but the different pruning.

Since then we have changed our views and practice, with the most satisfactory results. But the most positive proof is the different systems of pruning contrasted with each other on the same and and different varieties, in the orchard, under similar conditions.

In the Fall of 1860, we set out a lot of Chronicle apple trees, 5 years old,—they had been twice transplanted and pruned. Those not pruned, since reset, are 15 inches in circumference near the ground; one pruned once since, 11½ inches; one twice pruned since, 10 inches.

A lot of Red Astrachan, reset at the same time, three years old when reset, those not pruned since, 14 inches; one slightly pruned once since, 12 inches; one pruned up to two feet, 11 inches.

A lot of Fultons, three years old when reset, those not pruned since, 15¾ inches; one slightly pruned once since, 14½ inches; one pruned up two feet, 12 inches.

A lot of Benoni, same age, those not pruned since reset, 13 inches; one slightly pruned once, 11½ in.

A lot of Sweet Bough, those not pruned since reset are 12 inches; those pruned once since, 9½ inches.

One Fameuse, not pruned, 14 inches. One Red Russet, not pruned, 16½ inches. One Talman's Sweet, not pruned, 14 inches. One Trenton Early, not pruned, 14¾ inches.

A lot of W. W. Pearmain, one year old when reset, one never pruned, 15⅛ inches, bloomed last year, bore 30 apples this year; one slightly pruned one, 11½ inches, did not bloom, another slightly pruned once, 11⅜ inches, did not bloom; one pruned up two feet, 10½ inches, did not bloom, and no fruit buds set.

One Siberian Crab, not pruned since re-set, 9½ inches, bore fruit the last three years; one pruned back once severely five years ago, 6½ inches, has never bloomed.

In these examples we have only given the size of the trees near the ground, while the most marked difference is in the branches, general dimensions, and vigor of the trees, as well as the present and future prospects of fruit. Contrary to the popular

opinion, they bore much younger, and are more healthy and vigorous.

The same rule holds good if we prune the trees when young in the nursery. In the Spring of 1864, we reset a lot of trees seven years old, which had been transplanted into the nursery rows when three years old, and pruned up at the time to different heights. A lot of Summer Pearmain, those pruned up two feet now average 10½ inches in circumference, those pruned up three feet high average 9 inches, and a much greater difference is found in their tops. A lot Siberian Crab-apple trees, those pruned up 9 inches high, average nine inches in circumference; those pruned up 15 inches high average seven inches, and those pruned up 33 inches high average 5½ inches, and even a greater difference is found in their tops. The low pruned trees have bore fruit, while the high pruned trees have not bloomed. Also, as much difference is found in *pruning-in-trees* when transplanting them.

We reset the same Spring some Yellow Bellflower, two of them were shortened-in when reset, one of these died the first season, and the other is nearly dead, while the balance are doing well. We reset some Winter Pearmains, one was pruned-in which is nearly dead, the others are fine and healthy. We also reset about 200 trees of different varieties, pruned-in at the time a number, these are nearly all dead or very much diseased, while those not pruned-in are all living and doing well except three, which were otherwise injured. These trees we took up, handled, transplanted, and have attended to them ourselves, and we know they received the same care and attention.

Having now considered the subject under various heads, both in theory and practice, we shall now endeavor to examine the popular system of pruning as recommended by some of our most able horticulturists, and in doing so we ask your patient attention.

In our investigation of the subject, we find no author more concise and explicit than our western friend, Dr. J. A. Warder, of Ohio, in his essay on the "*Philosophy of Pruning*," read before this society June 5th, and published in the August number of the *Gardener's Monthly*, 1866.

With due respect to our worthy friend, we shall take the liberty to confine our remarks more particularly to his article, as it embodies the substance of the present philosophy.

The Doctor has ably set forth the principles of pruning as generally believed and practiced by horticulturists, and has to some extent reviewed the opinions of others, but the most remarkable and interesting portion of his article is his candid admissions of *Nature*.

He says he is going to give us "A simple statement of the facts as they have appeared to me, and as they may be read by any of you in the great book of nature, is all that will be attempted."

Now hear what the Dr. has found in the book of nature. He says: "It may be said, that in the natural trees, whether standing alone in the midst of a prairie, thickly grouped as in the oak opening, or crowded together in the dense forest, we may behold the most perfect models of beauty and of fruitfulness; yet these have never been subjected to the action of the knife, the saw or the hatchet. True, and yet they have all been pruned by *Nature;* she prunes and trains magnificently, and gives us the finest models for imitation." "In the single specimens free access of air and light have enabled it to assume its full proportions, developing itself on every side, and giving us the grand, majestic, and beautiful objects we behold with so much pleasure."

Now if the Dr. had stopped after making these candid admissions, we would have nothing further to say upon this subject, for true *nature* gives us not only the most perfect models of beauty and fruitfulness; but she prunes and *trains magnificently*, and gives the *finest models* for imitation. Yes, my dear hearer, *free access of air and light* have enabled them to assume their full proportions, and developed all their parts in such harmony, *without the pruning-knife*, that we behold their grandeur, majesty and beauty, with pleasure and admiration.

If we must go to *Nature* to seek for examples of beauty and perfection as models for imitation, then she surpasses the art of man, and we should humbly bow and submit to her superiority, and not endeavor to rob her of the glory she so justly merits.

Where does nature ever cut back a young tree to make it grow *stocky*, to form the head at the *proper place*, or give it *vigor?*

We ask again, where in the Book of Nature are we taught this doctrine or the postulate to "prune in winter for wood, in summer for fruit?" It may be said she teaches it everywhere. Is it not sanctioned by custom and made sacred by time? Do not the best talent and most practical approve of it? Who is the person that dare assail it? Has it not monuments erected in honor of its fame all over the land? Step to your nearest neighbor, and behold its beauty, sublimity and certainty! Go but to your own sacred spot, the garden, and watch its operations: see how quickly and finely it has trained yonder tree; do you not see its beauty and symmetry?

See how it is laden with those rich productions.—Do you not perceive the sweet fragrance and fine aroma? Taste my fruit and drink my wine, and see the exquisite delight it produces, and you will no longer doubt my philosophy.

Stop, my gentle hearers! Do not imbibe too deep into its nectar and be carried away with its sublimity; for we have to hear the opposite side. Open the book of Nature and you will not find a word in favor of cutting back a tree, or shortening-in its laterals. If, in its youth, it is shorn of its glory, it makes a strong effort to regain its loss, by sending forth a number of vigorous shoots to regain its crown, and conceal its mutilations. If beset with storm or tempest it braces itself up by sending forth strong roots, contracting its top, enlarging its trunk and multiplying its laterals. If in the grove or dense forest, it bids defiance to the destroying elements, and raises its head up majestically to receive the light and breathe the pure air. If assailed by enemies that threaten its destruction, it is not willing to give up the struggle in quiet submission, but hastens to maturity to make provision to perpetuate its species. So, wherever we behold it, in the grove, prairie or dense forest, it always adapts itself to the surrounding circumstances and makes the best of its condition. It is not doubtful, mistaken or deceived: no enticing hand can divert it from the right course. It seeks nourishment and light in the direction they are most easily and quickly obtained. In vain may we, in our ambition, endeavor to instruct it to fulfil its duty, but it stands as a monument from time immemorial, without changing its character, and, even in death, as an emblem of contemplation and admiration.

Again, the Dr. says "pruning is one of the most important operations to be applied to plants; pruning, in some sort, has to be performed at all periods of their existence and growth. We prune our plants for the most opposite purposes. Thus it appears that the ends to be obtained by pursuing the practice of this important operation are exceedingly diverse and apparently contradictory. Nor is it any wonder that the novice should feel bewildered in the midst of directions so opposite; nor even that those who have grown gray in the orchard should have arrived at the conclusion so strange as *not to prune at all.*"

Here we have the whole pith of this beautiful system of pruning in a nut-shell, and the Dr. appears to see its force and difficulty, for he does not *wonder* that the novice should feel bewildered, nor the experienced orchardist, who has grown gray in the business, should not prune at all; yet he thinks it *strange* that he should arrive at such conclusions. If neither the novice or experienced can comprehend its philosophy or come to its conclusions, then we are placed in a sad dilemma,—for who will be able to deliver us from it?

In fact, this system of pruning is based upon the assumption that trees are *naturally* in an abnormal condition, and require continual pruning to restore them to their normal state. While we may admit they are often found in such a state, we deny it being their *natural condition.* We believe Nature is true and unerring in all her works, developing every part in just proportion and at the proper season, when placed under congenial influences. This being the case, pruning is only a secondary consideration, and not primary, as generally taught.

But, let us hear the Dr. again. He says, "The judicious pruner being well aware of the upward tendency of the young growth, and that this is increased by the crowded condition of the tree in the nursery square, seeks to overcome the evil by proper pruning." Here he conveys the idea that the upward tendency of the young growth is an *evil*, and their crowded state in the nursery increases it; consequently we should prune to overcome this evil.

If this upward tendency of growth is an evil, then Nature is in fault in impressing them with such peculiarities; and if the crowded state in the nursery produces it, then we are in fault in placing them under such conditions: so we cannot see the propriety of pruning in either case while they are controlled by such influences.

Again, in contrasting the growth and production of wood with the tree's fruitfulness, the Dr. says, "these two acts are, in some sense, antagonistic.—The first is essential to the production of timber to the building up of the tree, and should be encouraged to do its work, undisturbed, to a certain point, that we may have a substantial frame-work by which our fruits can be supported. The latter however is the ultimate desideratum with fruit growers; and, in our impatience to reap a quick reward, we often resort to measures that tend to curtail the usefulness, size and beauty of our trees, as well as their performance. "This is an illustration of the axiom, that whatever threatens the vitality of a plant tends to make it fruitful."

"The operations of summer pruning and pinching constitute an interference with the growth, by extension and threaten the life of the tree." Here we can fully concur with the Dr., and had he, after stating what he found in nature, confined himself to the *facts* he found in art, it would have sufficed without endeavoring to harmonize a system, which

is not only apparently contradictory, but which is at variance with both Nature and Art. There is some plausibility in the theory to prune for wood; but it is beyond our imagination to suppose we can "prune to make them grow vigorously."

It is no wonder that "nurserymen and orchardists, men who have had opportunities for extended observations, and those, too, who are considered successful cultivators, advocate the idea that trees should not be pruned at all." We absolutely deny plants can be pruned to give them more vigor, that they can be cut back and made to grow more stocky, or that shortening-in, when transplanting, is necessary.

It would be much more interesting and satisfactory if such persons on pruning, as A. S. Fuller, in his article, read before this Society Nov. 6th, and published in the December No. of the *Gardener's Monthly*, 1866, would give us examples, in *America*, of healthy and productive vines "not two feet high and not occupying more than three feet square of soil," even *one-fourth* of a "hundred years old," than to recommend the Sequoia gigantea of California as suitable trellis-posts" for those who differ on pruning. If they, in their lofty flights, can indulge in no higher themes, they would better contemplate the works of Nature, and ask themselves the question, why this strong, rapid, running propensity, endowed upon them by nature, should be curtailed within two or even ten feet?

They might as well endeavor to confine their mammoth tree to two feet, and place it in their conservatory, and then say it was vigorous and healthy, and it had fulfilled its destiny. If we, in our imagination, can only contemplate a Grape vine on a *tree*, because we often find them there, others might, with equal propriety, consider them on *brambles and bushes*, because they are more frequently found there. If our experience has not convinced us, by the general failure of our vineyards, that our planting, pruning nd training are wrong, we should, at least, be willing to hear of a natural remedy to overcome this diseased tendency, instead of comparing the results of our practice to the "eggs of an imaginary bird."

Nature has never endowed plants with vigorous constitutions, and remain healthy, curtailed within such undue limits. In conclusion, we would ask Why mutilate them so much? have they not been dutiful to their instincts? Have they not assumed their beautiful forms to preserve their identity? Have they not their peculiarities impressed upon them by nature? They have been inspired with handsome forms and clothed in mantles of living green, and the gentle breeze wafts them to and fro for our gratification. Why be so cruel to them? what have they done to deserve such unmerited punishment? Have they not arrived at maturity soon enough? Has your anger kindled because of their youth? Will you still harass them more because of their nature? Have patience: they be faithful to their trusts and fulfil their destiny. They will give you, in due time, their beautiful flowers, sweet fragrance and handsome fruits. Be not hasty but wait a while: they will amply compensate you for your indulgence, with good forms, healthy constitutions, and yield those rich productions you have so vainly sought in the wrong direction. They will fill your store-houses with the abundance of their luxuriant fruit, and fill your casks with *pure* wine, and transmit their good qualities to your posterity. Nature never prunes as we do; she never mars or mutilates her form by a hasty, foul stroke. If a branch is deprived of air and light it grows less vigorous year by year, and *gradually* gives place to those around it. If fully exposed to air and light it grows with vigor, and is arrested, in due time, *gradually*, by sending forth numerous laterals. In whatever condition of life we find them, protected or exposed, they gradually accommodate themselves. Nature's process is *slow*, *imperceptible*, but absolutely certain.

VARIEGATED OR ORNAMENTAL FOLIAGE PLANTS AS BEDDERS.

BY J. M.

The additions that are constantly being made to the above class of plants now enable us to use them for purposes not before much thought of; their brilliant, stately leaves and varied forms taking the place, in a great measure, of our old bedding plants as a substitute for flowers. We find, in European countries, their admirable bedding qualities are brought into requisition to a great extent, both in their public and private gardens. We are told by them, that they answer admirably all the purposes required of bedders; that with their nameless shades of color, they equal, if not excel, the bedding plants of earlier times. They also tell us that their Summer heat is found all sufficient for many subtropical plants. If this be so, that they can, without fear, bed out such plants, what may we not do with our Summers far warmer than the most of theirs? What a fine effect could be made by us with such an advantage in our favor?

Why should not the bedding out of such plants as Marantas, Dracænas, Caladiums, Cissus, Palms, and other ornamental plants of this class become

general? With such, and others that we are accustomed to bed out, we might give to our gardens that grand and imposing appearance which tropical plants alone can produce.

Of ornamental plants to be found already in our gardens, in summer, what flower is there that can produce the dazzling brilliancy known to the *Coleus Verschaffeltii*. There are but few, if any, that could by any means be made to equal it. The beauty of such a bed would be enhanced by the interming. ling of that pretty, silvery-white leaved plant, *Centaurea ragusina*.

The *Iresine Herbstii*, I presume, may now be classed as one of our necessary plants for the garden in summer, although I am aware that its good qualities are still disputed. My impression of it was unfavorable as an acquisition throughout the summer months, but as soon as the cooler months of autumn came, they seemed much benefited thereby, and their appearance, which, previously, had been very common-place, improved very much, and forced me to acknowledge "there was something in them."

They, like the Coleus, repay us better if planted in partial shade, in summer;—it brings out the deep purplish color in them, which, contrasted with the other tints, constitutes their beauty. The Iresine requires less heat than the Coleus, a fact worth remembering when planting.

It has become customary with Europeans to make borders, of some small plants, around their flowerbeds. Usually, they choose those with white or variegated foliage, such as Stachys, Cerastium, Centaurea, variegated Balm, and various others. They are all hardy here, and can be left out all winter,—excepting the Centaurea.

I think if more attention were given by us towards selecting plants for bedding-out purposes from those usually termed "Hothouse Plants," our gardens could be made to rival those of Europe. If we lack the atmospheric moisture they find so beneficial, or I may say essential, to their bedding plants, our extra heat gives us the choice of others, which they could not put outside of their stoves with safety, thus enabling us to adorn our homes with tropical plants in summer, which are, in most cases, of more beauty, and more pleasing than those of colder climes.

HYBRIDIZING THE PEACH AND PLUM.

BY JOHN H. CHRISTIE, DYERSBURG, TENNESSEE.

Much was said about the Peach and Plum hybridizing, in the *Gardener's Monthly*, before the war,—since, I have not seen it spoken of. I live in the South, and, consequently, I could not get the *Monthly* during the war, so I do not know what was going on, in that line of business, all that time.

In the year '57 or '58, I planted a lot of Wild Goose Plum seed, borne on trees that had grown among some Peach trees, (this Plum and Peach both bloom about the same time,) and I raised some thousands of them. Some of them resembled the mother Plum very much, and some were so near like Peach trees it was almost impossible to distinguish them, unless compared together; and there were all grades between the Plum and Peach.

I then thought I had accomplished the great feat of hybridizing the Plum and Peach, but. in time, I found I was mistaken. Those that were nearest like the Plum bore a little, hard plum, not the tenth part as good as the Wild Goose Plum; and those like the Peach have not borne at all yet. They set their bloom like the Peach, but when they bloom out they have no petals, and soon fall off, setting no fruit.

I wish some one, who is experienced in making barren trees fruitful, would send and get some grafts and try them (the trees are, without doubt, part Peach and part Plum). I will send grafts to any one that will pay the postage.

I can here state that the Wild Goose Plum, where it has been tried, is found to be the best plum in the South. It is the hardiest tree of the stoned fruits that we have in cultivation in this country. The greatest objection is its too great fruitfulness. The tree often breaks to pieces on account of the great quantity of fruit. The fruit is very large and very fine flavored.

RARE EVERGREENS AT THE WEST.

BY MR. S. EDWARDS, LA MOILLE, ILL.

In your valuable magazine for February, I notice some enquiries from Mr. Robert Douglas, of Waukegan, Illinois, in regard to hardiness of several varieties of Evergreens. Having bought some little experience in that line, at a high figure, it affords me pleasure to give others the benefit of it.

Corsican Pine suffers very much, though it *lives* through our winters. Pinus cembra, P. mitis and P. resinosa are perfectly hardy, desirable. Menzies' Spruce, Douglas Spruce, Thujopsis borealis and Libocedrus decurrens are all tender here. Picea Nordmanniani suffers *very* little, P. pichta none,—both are desirable.

REPLY TO THE DISCOVERER OF THE "ROOTLING VINE."

BY PETER HENDERSON.

I am well aware, Mr. Editor, that no benefit is conferred upon your readers by a personal controversy, nor would I ask you to give space to my reply to Mr. Barnett now, but for the reason that when I endeavored to give my opinion about his modest circular, I did not use his name, nor did I even state that the city of West Haven, Conn., had been honored by his illustrious presence. This document was thrust into my hands by the Postman, *unasked*. It contained a special request to be *posted up*,—inviting criticism. I posted it up as I thought it deserved to be; and, in doing so, have brought the wrath of its distinguished author about my ears. Now, inasmuch as you allow him to attack me personally, by name, I think, in common fairness, I am entitled to a reply.

Whether I untruly quoted from his "Rootling" Circular, any body can decide who has interest enough in the matter to send to him for one of these "interesting documents." I possibly may have slightly changed the wording, but emphatically deny that I changed the sense of any one of these quotations in the slightest particular.

Mr. Barnett makes allusion to having met me at the Flushing Grape Sale, and having there offered me $1000 to produce a fac-simile of his "rootling vine." This is perfectly true: but all understood this unbounded liberality to be only a miserable attempt at bluff, which the gentleman was forced to try, when he, with his circulars and "rootlings," had become hard pressed by some wags of the craft to whom he was figuring as a most ridiculous centre piece. I did not choose to make myself equally ridiculous by even a semblance of accepting his offer, which would have been no more preposterous, in my opinion, had it been offered me to produce 100 cabbage or Tomato plants.

The gentleman's experience at the Flushing Grape Sale was that of thousands of great discoverers who had gone before,—he was everywhere met with unbelief: his "Gift of God to man,"—to the man Barnett,—was sneered at by the vulgar crowd. Even that bright scintillation of intellect,—thedevelopment only of a learned mind,—the original,—the unknown,—the unheard of term "rootling" was uttered with mocking lips; and one ungracious rascal had the audacity to say, that a certain Dr. Royce, of Newburg, had, years before, used the terms "Budlings," "Cutlings" and "Shootlings," in vending his vines, and had only stopped short at "Rootling," being afraid of using up all the "*lings*."

It seems that I touched Mr. Barnett on a very tender spot in alluding to him as an old gentleman. This, I confess, was entirely a random shot; for, when I wrote that article, which appeared in the December No., I had never seen him; and, what he no doubt thinks even more wonderful, had never heard of him; and only judged that he was an "old gentleman" by the antiquated and pedantic style of his 'Notice to the Public;' and I was a little surprised when, instead of an octogenarian, as I had pictured him, a hale and hearty gentleman of something less than three score summers stood before me, and announced himself as the veritable Barnett. So if I did wrong him by thinking him an aged man in his dotage, I blame it all to my inability to understand the fossil beauties of his style.

Mr. Barnett queries whether, when I first saw his print, it did not bewilder my brain? It certainly did; for I had never before seen such a tissue of egotistical assumption embodied in one *small half* sheet, (the gentleman is evidently of an economical turn); and I was astounded to think that any sane man could have put such a print before the public, without expecting to be outrageously laughed at.

As a proof of this egotistical assumption peculiar to the gentleman, I quote from his reply to me, in the February No.; he says, "Study, books and horticulture, thus far, comprise all the occupation of my life, though the business community have long known me as a landlord."

Thus he refutes my presumptuous insinuation of his early avocations being probably confined to the lap-board or lap-stone, which I had ventured to suppose might have been the case when he showed, as I thought, such an utter want of the simplest horticultural knowledge. But what he means by telling us also that he is "a landlord," I am at a loss to conceive, unless he wishes it to be known that he is rich; but what that has to do in helping his denial I cannot understand: for have we not both rich and distinguished tailors?

Further he says that "Greek, Latin, French, German and Spanish are the familiar literature of my library." No wonder that I could not appreciate the peculiar style of his "Notice to the Public," when it emanated from such a fount of learning. No wonder that anything a "common gardener," like me, could write, would be counted as "Billingsgate" by this profound pedagogue!

Again, he tells us that "strangers" have wended their way from all sections, not to see a suburban village, but the vines that grow in it, *the one that grows them*, and that knows how to fruit them." If ever before such puerile twaddle has disgraced

the pages of the *Gardener's Monthly* I have not seen it. He talks about soiling my pen: I think I have, when it has, in this case, been the means of bringing him to the surface.

Mr. Barnett denies that he says in his Circular that "the sole cause of the paralyzing of vines, seen all over the country, is in consequence of growing them in "glass pens." If he does not exactly use these words, no amount of quibbling will clear him; but it is that he means. In fact, the idea is such a favorite one with him, that he does not write half a dozen paragraphs before he seems to have forgotten he has denied it, and again asserts it in substance in the following rambling sentence:—"exposing their (the vines) enemies, the insects, and 'glass pens' the thrip, and the mercenary steam propagator, who prostitutes his calling by spawning his sickly abortives upon the land." If he was not such a learned man, one would be apt to question the logic of this sentence; but we will pass that, and only wonder that a gentleman who so freely charges another with misrepresentations should thus falsify himself.

Mr. Barnett complains that I brand him as ignorant and presumptuous: I do so again, to his teeth; for he thoroughly shows his ignorance of Vine culture in the above paragraph, in assuming that "insects" and "thrips," and sickly abortives are a consequence of propagation under glass. That he has had no experience in the matter is evident, or he would know that Grape Vines or any other plants grown under glass are entirely under the control of the operator, and that there is no more valid excuse for a Gardener having "insects," or "thrips," or sickly abortives in his propagating house, than there is for having weeds in his Cabbage patch. This is why I think him "ignorant,"—why "presumptuous,"—in discussing a subject he knows not of.

It will be seen by the advertisement he is allowed to make in the winding up of his reply to me, that "rootling stock" has sadly fallen since November. In his Circular, then, he quotes them at 5 cents a-piece; *now*, he says he is going to "scatter them broadcast over the land at the first dawn of Spring, from Ocean to Ocean, at a penny a-piece." Who can have been *bearing* "rootling stock," to cause such an unheard of depreciation?

I have not yet seen the "hand writing on the wall," nor is there any indication of the "Glass-pens" at South Bergen beginning to crumble; but when it becomes necessary to quote even "rootlings" of any kind at a penny a-piece I should think that the end is not far distant.

If Mr. Barnett deludes himself with the belief that any criticism I have made in relation to his "discovery" was influenced in the slightest degree either from personal motives, or from fear that his "broadcast" system would hurt my business as a "steam propagator," I am sorry for him. That I could have no personal motive is evident; for, as I have before stated, I never saw nor heard of him until I saw him in Flushing, six weeks after I wrote the paper which appeared in the December No.—If I believed his plan as economical or practical, I would never have used "steam," as he calls it, for I knew how to produce roots without development of buds, (just as well as Mr. Barnett knows to-day,) long before my beard was grown. I have some 20 hands in my establishment, of all ages from 15 to 40, and I think the dullest fellow in the lot knows that when we wish to produce roots without development of buds, that there is but one way, and one way only; and that is, that the medium in which the cutting is placed must be of a higher temperature at its base than its top. This is the simple principle, and the propagator uses his judgment in making the most of the means within his control.

This may be done in various ways: it may be done by inverting the cutting and covering its base with an inch or so of sand or soil, and subjecting it thus inverted, to the sun's rays covered by sash; thus giving the bottom part of the cutting a higher temperature than the top,—bottom heat: or a foot of leaves and manure, or other fermenting material is made as in a hot-bed, three or four inches of sand or soil is thrown over it, the cuttings inserted therein to half their depth. If roots are wished, with buds dormant, *no glass is used*, but, instead, the cuttings are covered with boards, in day time, *to exclude the light and heat.*

A bed of this kind would give, during the month of March, in this latitude, an average temperature, perhaps, of 65°, while the night and day average of the atmosphere, in the shade, would, probably be 50°.—the necessary condition to those who would wish to produce "white roots with dormant buds." Our practice in the "glass pens" is nearly similar to this.

I have no Grape Vines under such treatment this Spring, (Mr. Barnett's rootlings, or something else has scared me off,) but I have nearly a hundred thousand hard wood Rose cuttings, placed in a North-western aspect, where, since February 15th, they have received, by a hot-water tank underneath, a bottom heat varying with the weather, from 45° to 55°, with an atmospheric temperature, when practicable, 10° lower: this we get by *keeping the sashes open night and day* when not too windy or cold. The result is certain,—90 per cent. of the

whole will root, and that, too, with buds but slightly developed. If they were Grape vines, instead of Roses, all or nearly all would form white roots with buds dormant, *when kept at this low temperature.*—These are facts, incontrovertible facts, that any one may have ocular evidence of by a visit to my "glass pens." Whether I might have had the offer of "munificent sums" for the secret, like Mr. Barnett has, I know not, for I have not dealt much in the article.

Look out, Mr. Barnett, or I am afraid you will not be able to take rank with your "once fellow townsmen, Whitney and Goodyear,"—the great "discoverers,"—those to whom you say I am indebted for my shirts and shoes.

The clouds are lowering! "The immutable laws of physiology and chemistry" are just as certain in the "glass pens" at South Bergen, as in the secret crypt of that "one-horse town" in the Nutmeg State. Be rapid in your movements: do not even limit your supply to one million, or even ten millions, for you know not the day nor the hour when, like Othello, your occupation wi l be gone.

NOTES ON J. E. J.'s REMARKS ON GERANIUMS, IN THE JANUARY NUMBER.

BY J. M.

On perusing the instructive chapter by J. E. J., in the January No., on the above subject, which, in the main, I quite agree with, I could not, however, coincide with him when speaking of scarlets; he says, "with but few exceptions the other shades of color fail to satisfy out-of-doors. Christine, a most excellent pink, does tolerably well, but the Salmons,—white, rose and pink shades,—usually bloom shyly and poorly in beds and borders."

I agree with him in regard to Christine; it is but an indifferent grower but blooms well: but nothing in the way of Scarlets could surpass a bed of the beautiful pink, "Helen Lindsay;" its growth and flowers were all that could be desired. It was, truly, a splendid bed.

"Clara," another of the pink colored ones, together with "Beaute de Suresne," grew finely, but the latter named, I thought, somewhat shy of bloom, although as the plants of it were small, and it being my first season with it, I cannot say that it is characteristic.

Of the Salmon and Rose shades, in which might be placed "Rosamond" and "Countess of Guada," I found them to be all that could be desired. "Col. Harcourt" and "General Scott," the former a well-known Salmon. are unequaled out-of-doors. With Whites I confess to have failed in getting them to flower well. "Lad" seems to be about the best with me, though not a pure white.

Of Rose shades, "Hector" and "President King" would, I think, satisfy any one as to their capabilities to cope with the Scarlets.

I should have no fear of their not doing well if planting out some of almost every color to be found amongst them.

THE ENGLISH SPARROW.

BY HORTICOLA.

To be intelligible, I follow the custom generally adopted in this country, of calling the Sparrow in question also *the English Sparrow*, although no name could be less appropriate and correct. The bird is exceedingly common all over Europe, the temperate and colder parts of Asia, and the northern part of Africa: for the slight variations which the Italian and Spanish Sparrow show can hardly be considered as constituting a variety, certainly not a species. The Sparrow is the *Fringilla domestica*, Lin., *Pyrgite domestica*, Cuv. In Germany it is called *House Sparrow*, because it is always found about houses in villages and cities.

There is another species of the Sparrow tribe, the *field Sparrow*,—*Fringilla* or *Pyrgite montana*,—closely allied to the house Sparrow, and also very common.

In the male and female of the house Sparrow there is a difference of color,—the female being gray all over, and the male having the crown of the head bluish-gray. The male and female of the field Sparrow are alike in color, the crown of the head being of a brownish-copper. While the house Sparrow builds its nest under the roofs and eaves of of houses, the field Sparrow selects hollow trees. Both have the same habits.

The house Sparrow is very common in the city of Hoboken, as well as in Jersey City, N. J. Should it be true, what has been asserted, that Sparrows were imported to keep the noxious insets in the Central Park in check, a mistake was made in the *choice of the species.* The *Field Sparrows* would have remained in the Central Park, but not the *house Sparrows*, which are, even on the Continent, wanting in villages surrounded by large forests.

I do not intend to write the Natural History of so common a bird, but to contribute my mite to the solution of the question, still agitated in Europe and in this country, *whether it is useful in destroying insects, or detrimental by devouring grain, berries, &c.*

First, we will turn our attention to some well authenticated facts.

Frederick the Great, being annoyed at seeing

the number of the Sparrows rapidly increasing in a certain district in his kingdom, and believing that great damage was done by them, gave an order that every one of them should be destroyed. From the moment that the order had been executed, the people of that district *could not raise any more fruit*, as the insects destroyed it entirely. At last, they laid their complaint before the King, who, after a careful investigation of the circumstances, and after the lapse of several years, each of which showed the same result in regard to the raising of fruit, was compelled to send for a supply of the Sparrows to a great distance and at an enormous expense. The Sparrows had hardly established themselves there when the people were again able to raise fruit. When a boy, this striking fact was frequently mention- in my hearing. It is referred to by Dr. Alfred Brehm, Director of the Zoological Garden at Hamburg, in the *third* volume of his most admirable work, *das Illustrite Thierleben*, (the Illustrated Life of Animals). I cannot give the page as my copy is in the hands of the book-binder. Dr. Brehm is the highest authority. He traveled many years all over Europe, and several times in Africa; the last time as Naturalist, in company of the Duke of Saxe Coburg, after the death of his brother, Prince Albert, the husband of Queen Victoria. I risk nothing in saying that no similar work exists in any literature. The greatest naturalists are unanimous in its praise: I do not recollect a single instance to the contrary. A man of Dr. Brehm's standing would never relate what is not based on truth.

Dr. H. O. Lenz, in the Second Volume of his classical Natural History, page 141, says, that he knows of parts of Germany where it is impossible to raise fruit, on account of the insects which multiplied rapidly after the Sparrows had been too much diminished.

What naturalists, like Brehm and Lenz say is certainly of greater weight than what people say perfectly unacquainted with Natural History I could mention scores of other naturalists, such as Bechstein, Brehm, (the father,) Pemnnik, Baje, etc., but it would be useless: the worst class of the deaf, viz: such as do *not wish* to hear, would not be convinced.

In many parts of Germany it *was*, perhaps it *is* still, the duty of the adult male inhabitants to deliver to a certain official of the Government, annually, from two to twelve Sparrows' heads, in order to keep the number of birds within moderate bounds.

Fond of Natural History from childhood, I availed myself of every opportunity of extending what knowledge I had. I read, many years ago, an article in a periodical, published by a French Naturalist who had counted the number of caterpillars which a pair of House Sparrows had carried to their young, in a nest built under the roof of a house opposite to that in which the Naturalist was living, during six hours only. From a computation based on that number, he derived the number of caterpillars which, in this way, were destroyed in a whole season, by a single pair of Sparrows. That number was incredibly large,—as a pair of Sparrows rear from *twelve to eighteen young ones every year, in two or three broods.* The food of the young ones consists exclusively in Caterpillars and other injurious insects.

It was Autumn when I read the article alluded to, so that I was unable to test the correctness of the observation. I went, however, out into the fields shooting Sparrows, flocks of which were frequent everywhere. The examination of several dozen Sparrow stomachs showed a few grains of oats, barley, &c., but many more seeds of weeds, and small beetles, grasshoppers, worms, etc. In the following winter I made an arrangement in a room, which was divided into two parts by a large net stretched across it, to ascertain on what kind of food Sparrows could be kept. The inhabitants of the place took much interest in the matter, and sent me, within a few weeks, *sixty House Sparrows*, which, in the winter time, are easily caught. *Thirty of the Sparrows received nothing but grain* of every description, mixed, viz.: wheat, rye, barley, oats, rape and canary seed, etc., plenty of sand and water. *Fifteen received only meat*, raw or boiled, but always chopped fine, and also sand and water. *The remaining fifteen were kept on mixed food*, viz.: grain, bread, boiled potatoes, meat, etc.

The result was most interesting:—

Of the thirty Sparrows which had to live on grain, and seeds, exclusively, not one lived longer than six weeks. They all died of consumption of the stomach,—according to a learned physician,—a friend of mine, who examined a great many very carefully.

The thirty Sparrows kept equally on meat or mixed food, grew plump and fat, and were set at liberty in the following Spring,—not a single one having died.

The result of my experiment proves conclusively that the Sparrow cannot *live on grain and seeds alone, but that it requires insects or meat along with them.*

I considered it to be my duty to dissuade from the persecution of the Sparrows. I wrote articles

on it for popular papers, and addressed the local government on the subject. At length I had the pleasure of seeing the law against the Sparrows abolished in the province in which I was living.

In spite of the ignorance of many persons, the Sparrows have been introduced into Australia, Central and North America. They will do so much good, especially in destroying caterpillars and grub-worms, that their introduction will be considered a blessing. A gentleman of Hoboken City, an American by birth, told me, last fall, that the Sparrows there had already very much lessened the number of caterpillars infesting shade and fruit trees.

It is true that the Sparrows are fond of green peas, cherries and berries, and that they eat, occasionally grain; but it is also true that they do immeasurably more good than harm. As the bird builds its nest always on houses or other buildings, and as the nest is so clumsily constructed, that large matter of straw, hay and feathers project from it, it need never be searched after. So conspicuous is it that it can, therefore, be easily destroyed; so that the number of Sparrows can be diminished at pleasure.

The City authorities of Hoboken deserve great credit for having effectually protected the Sparrows by stringent laws. Would that their example were imitated in other places, and that the laws did not remain dead letters to increase the waste paper!

In this connection I would mention the European Starling, (*Sturnus vulgaris, L.*,) and the Chaffinch. (*Fringilla cœlebs, L.*) as very desirable birds for destroying caterpillars and other insects. As, however, their habits are very different from those of the Sparrows, their introduction would require some precautionary measures. In former years I devoted much time to the study of the habits of birds, and I published a book on the German Singing Birds, (*Braunschweig Vieweg*); but as the publisher had arbitrarily changed the title of it to that of "Natu-History of Cage Birds," I felt disgusted: because it lowered and degraded it; so I abandoned it altogether. What the publisher thought would suit *him* did not suit *me*.

As a horticulturist, I am far from attempting to improve the system of Botany; as an observer of the habits of Birds, I was very far from attempting to improve the system of Ornithology. All I desire and ever desired is *to collect and establish facts*. Of birds, I studied single individuals as representatives of their respective tribes. I put them under a variety of conditions, and I may, in this way, have been enabled to see some trifles apt to escape the notice of theorists.

I have some experience in introducing families of birds to localities where they did not live before; but this article is already longer than I intended to make it. I will, therefore, reserve what I have to say on that point for another occasion,—provided the readers of the *Gardener's Monthly* shall not feel tired of reading any more about birds, however closely they may be connected with horticulture.

Si quid noviate rectius istis,
Candidus imperti; si non, his utere mecum.

THE GLADIOLUS.

BY MR. GEO. SUCH, SOUTH AMBOY, N. J.

The Gladiolus is so splendid a flower, and so well suited to our climate, that it must soon be in every garden throughout the land. Objection has been made to the short duration of its flowering; but this objection is not very important, as a little management will give a succession of bloom from early spring until severe frosts cut down the stalks.

Last season I started Shakespeare, Walter Scott, Pluto and several others, in the greenhouse early in January, and these bloomed in March and April,—and bloomed, too, magnificently. Others, planted at intervals of two or three weeks after these, bridged over the time, until those planted outside, in May, came into flower.

From a bulb of Shakespeare, planted late in December, I have (Feb. 18) the flower stalk just showing; and from this, and many others in various stages of progress, I expect no ordinary amount of satisfaction.

I use, in potting, about one-half light sandy soil, with leaf-mould and old cow manure,—in the proportion of, say, three of leaf and two of manure; adding, if at hand, a little marl and bone dust.—This latter seems very beneficial,—producing masses of fibrous roots equal to any demand that may be made on them. I allow plenty of pot room, covering the bulb with about an inch of soil, and giving very little water at first, increasing the amount as fast as the growth is vigorous enough to take up the moisture rapidly, and prevent a sudden and unfavorable condition of the soil. Weak manure water now and then, after the flower stalk appears, gives nature a seasonable "boost." I had almost forgotten to say that a warm, greenhouse temperature is what is wanted, with plenty of light and air.

Among the newer French varieties are Shakespeare and Eurydice; easily the best among all with white ground. Both are cream white, flaked and feathered with various shades of rose and rosy vio-

let. They have the perfect form of the lovely Ceres with the vigorous growth of Reine Victoria, and seem, in all respects, faultless.

Milton stands in the first rank among those with rosy-white ground. The flowers are marked with red, large and finely shaped, on a very long spike.

Newton is a rich and peculiar shade of very dark crimson, lined with white and rose. Large and very fine.

Lord Byron is crimson scarlet, with white lines in the centre of each leaf, in the same fashion as Achilles. It is showy and effective, but the flowers are pointed, and not as well shaped as they might be.

Among the high priced varieties, not quite so new as the above, we have *Madame de Sevigne*, similar to *Le Poussin*, and not worth the difference in price, although excellent.

Meyerbeer is extraordinary grand, seeming about as near perfection among the Scarlets as can be imagined. The spike is magnificent, with a hazy splendor about the flowers that is quite indescribable.

Fulton is a fine, clear, vermilion red, marked with purple; a strong grower and very showy.

It would occupy too much of your space should I enlarge upon the merits of Flora, Walter Scott, a lovely rose color, Charles Dickens, Ophir, the stateliest of the yellows, Madame Vilmorin, Edulia, Prince of Wales, and a host of others. They are all charming, and must satisfy any one, no matter how great his expectations.

It is quite amusing to see how contradictory is the advice given for the treatment of Gladiolus bulbs and bulblets. Regarding the latter, Mr. Rand says in the *Horticulturist* for 1864, page 336, "lay them aside for 18 months, then sow them in the open border in a pepared bed; they will come up in ten days—not one will fail—and form bulbs which will bloom the next summer. If, however, you plant them the next spring after gathering, (instead of keeping them over a season,) not one in a hundred will come up." In a late number of an English journal, the Rev. H. Dombrain, a celebrated florist, says 'these bulblets must, on no account, be allowed to become dry.'

Now, the fact is, that Mr. Rand's statement is wrong, and Mr. Dombrain's caution is unnecessary. since, last Fall, I planted my bulblets to within a month or six weeks after taking them from the ground, and when they were quite dry. They have come up by thousands, so that the seed pans fairly bristle with their little blades. I find, however, that there is an unaccountable difference in the sprouting of the different varieties; as, under apparently similar treatment, Meyerbeer and Eurydice only began to show signs of life while a hundred others,—Lord Byron, Newton, &c.,—had leaves from four to six inches long.

The number of bulblets formed at the bottom of the large bulbs must, I think, depend considerably upon the soil and, perhaps, climate. The English Florist above mentioned says he finds the Gladiolus *Mons. L. d'Albanna* extremely prolific of these; but from other French varieties he has never been able to obtain more than three or four. His experience, I am sure, differs from that of many growers on our side of the water, as, with us, most of the varieties give a liberal increase in light soil.

But if we have the advantage of the English in the *quantity* of bulblets, they are decidedly ahead of us in the *quality* of their "small fry." In the London *Gardeners' Chronicle*, for January 26th, Youell & Co., (Royal Nurseries,) mentioning the quantity of Gladiolus Brenchleyensis they grow every summer, say, "we annually obtain magnificent flowers from bulbs of Brenchleyensis not larger than a pea!" The ! mark is theirs, and is well put; for no pea-sized Gladiolus, on this side of the water, has ever exhibited such astonishing power, nor ever will, I am inclined to think.

A year or two ago it was thought the soil could hardly be too poor for Gladiolus; but of late the advice has been to make it unusually rich. The truth, as usual, lies between these extremes. A light, well-drained soil, moderately rich, suits this flower. It is best that the land should have been manured the previous Autumn; but if delayed until Spring, none but old and thoroughly rotten manure must be used, and that from the "bovine race," as the French say, is best. In addition, a sprinkling of bone dust is good. If the weather should be very dry at the time the flower stalk appears, a soaking watering will be of great benefit,—much greater, in fact, than those think who have not tried it.

The Gladiolus should not be planted where it will be at all shaded from the sun; but if the weather should be hot and dry when the flowers show, the duration of bloom will be increased by shading the flower spike.

It is worthy of notice that, if the flower stalk is cut off and put into water, when most of the buds are still unexpanded, they will all open by degrees, and keep fresh for many days. So, for in-door decoration as well as for outside, the Gladiolus is certainly one of the most reliable flowers we have.

UNFRUITFUL BLOOMING PEAR TREES.

BY MR. E. H. SMITH, DEVEAUX COLLEGE, N. Y.

In the October number of the *Monthly* I notice my observations on 'Root pruning Pear tree in England.' (I have only just received that No.) I also notice your complimentary remarks upon my skill, at page 304.

I omitted one very important point, which will settle the question of unfruitful Pear trees. This Pear tree, in question,—a graft from a very old sort, the Swan's Egg,—was grafted upon a thrifty seedling, grew very rapidly, and made more headway than other grafted at the same time. It frequently blossomed, but never produced fruit. It received a most severe root pruning.

Talk of sharp cuts! There was not a root but was pounded into mince meat. The parent tree, from which the graft was taken, not only blossomed but brought to perfection a most abundant crop of fruit.

INFLUENCE OF GRAFT AND STOCK.

BY YARDLEY TAYLOR, LINCOLN, VA.

I have been interested in the articles in the *Monthly* relating to the Influence of the Graft upon the Stock, both by the Editor and by correspondents. We, who are Nurserymen, know that we may take stocks of equal size and thriftiness, and graft one with a strong growing variety, and the other with a slow growing one: the former will double or treble growth over the latter in the same time. This may in part, at least, be accounted for by the larger foliage of the former extracting more sustenance from the air, and thus stimulating the growth of the roots, and this again acting upon the foliage,—as there is known to be a reciprocal action between the roots and foliage of a plant, whatever injures one affects the other, and *vice versa*.

As to the putting forth of a bud a little below the junction of a graft with the stock of the same kind as the graft, I would explain in this way:—As it is generally admitted that the carbon of plants is obtained from the carbonic acid gas of the atmosphere, and as this is believed to be obtained partly from the roots through the sap, partly imbibed by the leaves, and as most of that brought up by the sap is used up in the larger growth near the base of the stock and lower part of the body of the plant,—so that imbibed from the leaves must descend through the upward flowing sap to supply the deficiency from below; and, from the great affinity of this gas for water, there can be no difficulty in this, as we know that a few drops of acid will diffuse itself through any amount of water it may be brought in contact with. The decomposition of this gas and its conversion into carbon takes time in the process, and as this process is going on, it will descend until it becomes fixed in place. Hence, while being converted in the body of the graft, it may become tainted, we may say, with the nature of the graft: but moving a little below the junction, before becoming fixed, carries with it the nature of the graft and thus produces a bud similar to the graft.

I had cut down, a few years ago, a thrifty Ailanthus tree, in the midst of summer, and on examining the growth of that year, I found the earliest portion of the growth was firm,—similar to older wood,—while the middle was less firm, and the part next the bark was a jelly-like substance, becoming fixed but very soft.

I have examined sap just beneath the bark early in Spring, and then the sap had a cloudy appearance, indicating the presence of matter for growth in the sap while passing up before becoming fixed.

I know of no influence the stock can exert over the graft, or vice versa, besides those above indicated. I have seen tried the grafting of a very sweet variety of Apple on a *very sour one*, and saw no difference in the fruit.

BEDDING GERANIUM, "Mrs. POLLOCK."

BY MR. W. PROVIS, DETROIT, MICH.

No class of flowers is more popular, at the present time, than the Bedding Geranium, and there is not, probably, in the whole range of novelties which have been introduced within the last four years, one that has been so immensely successful as 'Mrs. Pollock.' As a pot plant or a bedder, it is equally prized. In winter, if properly managed, it tends to make the greenhouse gay with its brilliant colored foliage; while, in summer, its appearance as a bedded plant is all that can be desired.

It was raised in England in 1861, and first exhibited in London in the Spring of 1862, when it was awarded a first-class Certificate by the Royal Horticultural Society. It was generally considered to be a sport, but the raiser, in writing to the *Gardeners' Magazine*, says, "it is not a *sport*, but a seedling and came variegated from the seed leaf. It is the result of a cross with the famous Golden Chain, so long admired and justly appreciated."

Mrs. Pollock belongs to the class of Golden tricolors. It has a flat, finely formed, green leaf, zone bright bronze red, belted with crimson and edged with golden yellow. It grows well, has a fine, robust habit, and, when of proper age, flowers profusely. The flowers, which are bright scarlet, are

nal of Horticulture, says he has plants growing in 10-inch pots which are two feet high, and two feet six inches in diameter, some of the leaves of which are six inches across.

The compost best suited to Mrs. Pollock is good turfy loam, leaf mould and sand, in about equal parts. After the plants get well established in their pots, give a top dressing of well rotted hotbed manure. In winter, it should be kept near the glass, in a temperature of about 50° or 55°; it will thus keep growing all winter, and furnish a good supply of cuttings for spring. These may be struck best in a moist bottom heat, using light sandy soil. When well rooted, pot off in loose sandy soil, place near the glass in a warm house, and give air every day.

THE IONA AND DELAWARE GRAPES IN OHIO.

BY MR. M. B. BATEHAM.

The brief report, given in your January No., of the discussion on Grapes at the annual meeting of the Ohio Pomological Society, though doubtless designed to be impartial, is not entirely correct; and, I find, is misleading the minds of some readers, especially with reference to the present standing of the Iona and the Delaware in this State. I trust, therefore, a few words of explanation will not be deemed out of place, especially as I am not a propagator, nor advocate of any particular grapes, but only seek to *plant the best* myself, and advise others to do the same.

It is admitted that a majority of the speakers, at the meeting referred to, had been quite unsuccessful, especially the past season, with the Iona and Delaware vines. The summer had been unusually wet, and mildew prevailed on the vines very generally in Pennsylvania, Central Ohio and Indiana, affecting all the choice varieties of Grapes, and in some places the *Concord*.

At the Zanesville meeting, full nine-tenths of the persons in attendance were residents of central Ohio —the least favorable portion of the State for grape-growing—and only two were from the Lake Shore district, where there are now about eight thousand acres of grapes planted in six counties, while there are only about 2000 in the other 82 counties,—in all say 10,000 acres in the State.

Mr. Bateham was the only person who spoke of the conduct of the Iona and Delaware on the Lake Shore Region, and his remarks are so imperfectly given in the report referred to, that I copy them here from the published transactions:—

Mr. B. said "he had traveled extensively along the Lake Shore region the past summer, and had seen very little mildew or other disease on the Iona or any other vines; and from all that he had seen or learned of the Iona fruit and vine, he should plant it more extensively than any other, for that region, if he could afford to buy the plants,—believing it to be the best of all our hardy varieties: for, although like many others, he had lost some vines by the past winter, he had no more doubts of its hardiness than he had of the Delaware, which suffered as badly by its side."

All the speakers who complained of the failure of the Iona vines admitted that the Delaware, in like circumstances, had fared as badly; and, as the latter has been found generally reliable for twenty years past even in central Ohio, it is not likely that sensible people will be disposed to abandon it for a single years' failure, or that persons who have learned to appreciate real excellence in grape fruit will be willing to forego the chances of having their tables supplied with ripe Ionas and Delawares, though there may be occasional failures, as is the case with choice varieties of fruits in all countries.

PLANTING ASPARAGUS.

BY X.

This appears to be such a simple operation, and yet so mystified by theorists and self-called Gardeners, that I offer the following method: it is thoroughly practical, and perhaps, what is better, it is simple:

In the fall, trench your ground to the depth of 18 inches at least, throwing it up as rough as possible. As soon as the ground is workable in the spring, again turn it over, forking in a good coating of rotten manure.

I prefer one year old plants, and, if possible, to have them just as they are starting in growth. Mark out your line, leaving 18 inches between the rows, and 3 feet from row to row to form the future alley. Lift off 2 inches of soil, and insert the spade to its depth, slanting towards you; reverse the spade and repeat this operation. You have now a saddle formed place, the crown of the Asparagus roots upon spreading the roots equally on both sides,—spreading them out like a fan. Press the soil firmly all around, and be careful the bottom of the crevice is filled up.

If a crop must be resorted to, I know of none less injurious than onions,—of course the future alley forming the present one. In the fall, roughly throw up your bed with a fork; never use a *spade;* throw up the alley as rough as possible.

The following spring again fork up your bed, giving it a moderate coat of manure. Throw out your alley to the depth of 4 inches on the bed, well breaking and pulverizing the soil, so that there is no large lumps. You may cut moderately from the bed this first year after planting, being careful to allow the *first head* to run to seed. Do not press too hard upon it the 1st and 2d year after planting.

This system was extensively practiced, and I can point to beds of Asparagus planted 20 years ago and still profitable. I am strongly opposed to fall planting,—Spring alone is the proper time.

The Gardener's Monthly.

PHILADELPHIA, APRIL, 1867.

☞ All Communications for the Editor should be addressed, "THOMAS MEEHAN, Germantown, Philadelphia," and Business Letters directed to "W. G. P. BRINCKLOE, Box Philadelphia."

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A NEW ENEMY TO THE APPLE GROWER.

In our February No., page 51, a Cleveland correspondent related some peculiar experiences with his apple trees, for which we could not account.—The ends of the branches, during summer, became as if they were arrested and deformed growths of fruits.

We have since examined these protuberances, and find them of fungoid origin, similar to the Black Knot, but of a very different nature. At present, we are inclined to think this an entirely new species of cryptogamic fungi,—whether a new creation or a new introduction, we are not now in a position to suggest; but certainly one which has not been known to exist on Apple trees in the United States before; and it will be well if the parasite can be destroyed totally on its first appearance, before it has had time to spread.

We regard it as peculiarly unfortunate for American horticulture that *its science* has not kept pace with its numerous practitioners; and this is clearly evident in the case of the Plum Knot. Because a curculio mark was found on the knot it was assumed that insects were the cause; and it has taken a persistent effort of six or seven years, through the *Gardener's Monthly*, mainly, before the community has been brought to understand that a fungus and not an insect has caused the trouble.

It would have been just as easy to have discovered this at the first appearance of the knot as now, if a scientific mind had been called to the investigation; and its general diffusion, perhaps, had been stopped. Now, with spores everywhere, it is an almost hopeless task.

With this Apple fungus the case may be different. It is only necessary to understand that these parasitic fungi have the same course to run as other plants. The spores, or seeds, develope, then grow, then mature spores for another crop. If the plant is destroyed before it can mature seed, the whole crop is destroyed. So that to prevent the spread of either this plum or apple knot, *all that is necessary is to cut off and burn before it matures.* Of course this will not prevent spores coming from other places;—but this any one will understand.

PROGRESS OF HORTICULTURAL KNOWLEDGE IN ENGLAND.

There is no country in the world where Horticulture is more popular, or carried on on a grander scale than in England, yet horticultural knowledge makes but very slow progress there. This is probably owing to a sort of feeling that no nation can possibly learn anything but themselves. It would make no difference to us how much they were satisfied with what they knew, if it were not that our papers have been so much used to look up to European knowledge as the sum of all that is known, that it is generally received as sufficient evidence of value that such and such an idea is "from an English journal;" and, in consequence, a good portion of our time is devoted to correcting erroneous impressions, which are propagated amongst our own people to their own injury.

The amount of progressive thought amongst the German and French horticulturists is worthy of much praise: yet we look in vain through English papers for any allusion to new German ideas, and only now and then see a reference to something French. The consequence is, they are continually led into amusing errors, and labor to find out explanations of phenomenon which all the rest of the world has known long before.

They have just got through a fit of "Madras Radish," and the Heath-like form of Ellwanger & Barry's Arborvitæ now astonishes them. They must, of course, give it a new name: Americans have no right to name any thing! "Tom Thumb" is too common a name for an Arborvitæ, though "Good Gracious" does very well for a Pansy, when given to it by an Englishman. So they will have nothing but *Thuja occidentalis cricoides* for this plant.

The fun of the thing is, that in Germany, they have had a form of the same thing, as nearly "alike as two peas," and with the same name, *Thuja cricoides*, for a dozen years or more. A friend of ours saw it under very extensive propagation in the Hamburg Nurseries, and from the large quantity there raised it must now be scattered far and wide over every part of the Continent.

This dogged obstinacy to know nothing but what is English, is also amusingly shown in the case of our Mammoth Tree, which they called Wellingtonia. Our American Botanists, Gray, Torrey, and others, showed them that "they were mistaken in its claims to be a new genus,—that it was but a *Sequoia*, a

genus already described." French Botanists, headed by Decaisne, told them the same thing; and, even in their own leading journal, one, at least, of their Botanists has lightly admitted it; yet it is Wellingtonia with them, and always will be.

For years they have been puzzling themselves over the circumstance that a tree is often killed during a given degree of the thermometer, when, at other times, it escapes entirely unhurt under the same temperature; and to this day they are discussing the influence of "ripe and unripe wood," "dry or wet autumns," and all the other matters long since shown to have but a trifling and incidental bearing on the question. The rest of the world have long since learned the reason why trees die at times under severe cold, is by the evaporation of their moisture faster than the roots can make good; and that, consequently, when the plant is in a condition favorable to the retention of its moisture,—a condition continually varying,—it does not lose its heat (or, in other words, does not freeze to death) so easily as under other circumstances.

Again, in our first volume, page 87, in reply to some notes of Mr. Sargent, we showed that the Engligh had confounded two very distinct things, *Libocedrus decurrens* and *Thuja gigantea;* yet, to this day, European periodicals confound the two, and we look in vain for any account of Libocedrus decurrens in any first-class English Catalogue. The influence of this stubborn literature is so great on this continent that, notwithstanding our account of the differences between these two were so clear as to carry conviction to every unprejudiced mind, very few of our Nurserymen, now, are aware of the real value of the beautiful and hardy *Libocedrus* in contrast with the comparative worthlessness of the Thuja gigantea, with which the English have persistently determined to confound it. At length the light seems to dawn upon them, for we find the following announcement:

"The Rev. M. J. Berkeley, who has been investigating the characters of the trees known in nursery collections as Thuja gigantea and Thuja Lobbiana, has discovered that what is known by the former name is not Thuja gigantea but Libocedrus decurrens; and that Thuja Lobbiana is the true Thuja gigantea. These facts Mr. Berkeley has ascertained by an examination of Lobb's specimens in the herbarium at Kew."

As we have said before, it would not be any business of ours what they believed, or how long it took them to get hold of an idea, if our people would only think more for themselves, and not depend so much for their thoughts on "foreign extracts." As it is, it is our duty to caution them that what they read is not all "gospel," but often pernicious heresies, which have a baneful effect on their successful horticultural operations at home.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Peaches from Seed—*R. R. J., Raleigh, N. C.*—"I have sown a bushel of Peach stones, with the intention of planting the seedlings out this summer and budding them in the fall. I have not much experience in horticulture, and a friend, who has more than I have, advises that I should set them out and let them bear without grafting. His argument is, that disease in the Peach is from a breach of Nature's laws. Nature never grafts, but reproduces from seed; and trees can only be healthy by a careful following of Nature."

[Always be careful of men's advice when their chief arguments are "Nature's laws." What is called Nature's law is but the sum total of human experience. As new facts are developed every day, Nature's laws change with them, and "Nature's law," to-day, becomes all nonsense tomorrow. Inoculate your Peach trees with healthy buds, and never mind your friend of "Nature's laws." That is our advice.]

The Animal and Vegetable World.—*An interesting writer* remarks:—"In some of their forms it is puzzling to tell where vegetable life ceases and animal life begins."

[The most remarkable fact connected with that truth is, that some forms are animal or vegetable at different periods of their existence.]

Fire Blight.—"*Como*" inquires: "What is the name of the insect which causes the blight in Pears, and the best means of preventing its ravages?"

[We do not know what insect he means. As the Pear blight often attacks large limbs, where the indurated bark must be a quarter of an inch thick, it must take a pretty "big bug" to poke his proboscis through; and if our correspondent looks out he must soon see him, and we shall be obliged for a specimen, when he gets one.

Our belief is, that fire-blight is the result of one of those lively parasitic fungi, the habits of which are not well known, but which it is now very well as-

certained does not wait for a sick tree to operate on. Unfortunately, we have no fire-blight in our immediate neighborhood, so that we are unable to see any cases in the earlier stages of development; and when we go anywhere else, we never have it pointed out until the deed has been done, and the fungus, if one, died away with the life of the Pear branch.]

Early Catharine Pear.—*R. B., Joliet, Ills.*, inquires:—"When living in Pennsylvania, many years ago, this was considered one of the best early Pears. I can never find it now in any nursery. How is this? Does it not do well now in Pennsylvania?

[It does wery well. We do not know any other reason why they are not often in Nurseries, except that customers seldom ask for it. Nurserymen strive to keep what their customers want, and find that that is almost always "something new."]

Hybridizing Ferns—"*Salem*," *Mass.*—"I read with much interest, and no little surprise, the article on the hybridization of Ferns in your February number, purporting to be the mode of process pursued by a gardener somewhere in Holland. It interested me to find that hybridization was possible: it surprised me to find that the union of two species was not by phytona and archegonia,—corresponding to the fovilla of pollen and to the ovary of higher plants,—but by "a gelatinous mass of different spores commingling at the very moment the spores commence to germinate, and before the pro-embryo has been produced!" And, what is very remarkable, the hardier and native (European) species do not observe this method, "of which the spores always reproduce the same forms" even in the varieties from the original type.

Being much devoted (for my amusement and instruction only) to raising Ferns from the spores, I should be glad to comprehend the philosophy of Mr. Stelzner's method, so contrary to sound reason and common sense. I have mixed the spores of several species before sowing, but have never seen or expected a hybrid,—certainly by no means so peculiar as he supposes.

I can imagine that hybridization, or *cross-breeding* rather, might occur, if two or more species or kinds of the same genus were in flower at the same moment; but how the mingling of a gelatinous mass can produce a new form of frond, I am at an utter loss to comprehend. If the first threads which precede the pro-embryo or protothallus, in some Ferns at least, if not in all, should become arrested in development, and remain an algæ or conferva, which they resemble, "commingling of the gelatinous mass" or conjugation and mingling of the chlorophyl would be normal in the production of a propagating spore. But this would be a retrograde motion from a leaf-like, frond-bearing plant to a green slime or conferva, which cannot be the method or result proposed.

Indeed, I have been unpleasantly reminded, in reading the account of the matter, of some crudities told me years ago, and exciting my organ of wonder besides challenging my spirit of disbelief: that to produce new varieties of Garden Pinks of any requisite color, sew together the roots of any two or more with colored silk, and you will have flowers of the color of the thread employed; and to change the style of color in Tulips, draw silken threads through the bulbs! And to obtain black Roses, graft them on the black currant bush; and yellow Roses will come of Berberry bushes when budded with the white rose: certainly a mingling of juices if not of "gelatinous masses."

Confident, from your writings and articles, Mr. Editor, that you consider the science of botany all-important in the science of horticulture, I beg leave to direct your eye to these points among others, and enlighten me as to the *modus operandi* proposed, will confer a lasting favor on one who reads the *Monthly* with profit, and who would be a *Filicoculturist*."

[Whatever appears in our "Foreign Intelligence" we give, of course, as mere "information," that our readers may understand the *status* of Horticultural literature in other parts of the world. Many of the *ideas* we no doubt often dissent from, but this we endeavor to maintain in other departments of the journal. The importance which has been given to this paper by the best European journals, seems to indicate that it is as far as the knowledge of Fern hybridization has reached there.

It is, as our correspondent shows, any thing but clear. We think the German Botanists are a long way ahead of the English in the knowledge of this interesting matter, and we will endeavor to have some translations made for our next issue.]

Farming an Orchard.—*C. E. R.* enquires:—1. "Will it injure a young orchard (set out last fall) to plant a crop of oats on the ground occupied by the trees?

1. Will it be injurious to plant said crop of oats if a space of three feet clear be left around each tree."

[(1) There is no objection to sowing the oats, if kept clear of the trees.

(2) We should sow the oats close up to the trees,

and mow off the oats around the the trees twice during the growing season, four or five feet around from the stem of the tree. The trees will do better with this closely mowed sod about them, than if the ground is kept clear of every thing. On no account let the oats grow up to maturity about the young trees.]

WASHINGTONIA GIGANTEA.--"Our very quiet and retiring contemporary of the *Gardener's Monthly*, who is always so courteous and gentlemanly in his own columns, seems to have forgotten his usual urbanity when writing for other papers; and we greatly regret to see our respected correspondent, Hon. R. S. Field, and, we think, also the friend of Mr. Meehan, and every lover of fine trees, set down by him as an "ignorant newspaper writer," because he don't agree with Mr. Meehan in calling the Washintonia a Sequoia, when such "ignorant botanical compilers" as the late Dr. Lindley said it was distinct from Sequoia, and gave it the name of Wellingtonia. We are so used to being classed with the "ignorant newspaper writers," that we don't mind it ourselves; but we do protest against having such intelligent men as Mr. Field, and others of equal information, designated by such polite terms. Does our contemporary claim to hold the place of arbiter in such matters of opinion among the botanists and horticulturists of the world? Mr. Meehan ought to know that Uncle John, who claims generally all that belongs to him,—and sometimes more —grabbed our biggest tree and called it Wellingtonia; that the French, who ignore the name of Wellington, call it Sequoia; and that the Yankees, who think they know as much about their own big farm, and what grows upon it, as anybody, and who first discovered the tree, insist that it shall not be dubbed Wellingtonia, when they, and the French too, know that it does not belong to Sequoia, and is as much unlike it as a Thuja is unlike a Cypress. "Ignorant newspaper writers"! Almost "made himself ridiculous"! Sounds well,—quite Pickwickian."

[The above is in reference to a remark of Mr. Meehan's in Judd's Horticultural Annual, that "some ignorant newspaper writers have called the tree Washingtonia, and ignorant botanical compilers in England affect to give as a synonym, 'Washingtonia of the Americans'."

The statement is strictly true. Ignorant writers in California newspapers called the tree Washingtonia; and Mr. Hovey, with no pretensions to botanical knowledge that we ever heard, followed in their wake. If Mr. Hovey wishes to make our statement untrue, will he tell us what Botanist named the tree Washingtonia? Endlicher is the authority for Sequoia, Lindley for Wellingtonia, and ignorant newspaper writers, *and no other*, for "Washingtonia."

We trust it will not affect our standing for courtesy and gentlemanly treatment of any who attack us in the above style, to remark that all the talk about "Yankee knowing," "Johnny grabbing," "Arbiter of Botanical knowledge," "Sounds Pickwickian," and so forth, is rather illustrative of the ignorant newspaper writer than of the intelligent man.

We have labored to make American horticultural literature respectable at home, and respected abroad. It is just such miserable stuff as this which we find continually in our way. We have never made any high pretensions to knowledge, yet we know enough to see occasionally about us men who are too stupid to learn for themselves, and too proud to learn from others; and these, unfortunately, manage to get the public ear in a manner to appear as the type of the whole nation, and bring ridicule and disgrace on the people they pretend to serve.

As to Mr. Field's preferring to follow ignorant newspaper writers, instead of intelligent authors like Torrey and Bigelow, (see Pacific R. R. Reports, Vol. IV and V,) it is nothing at all to us; and if he feels his intelligence flattered by the association in which Mr. Hovey places him, we do not envy him the compliment.]

EXCRESCENCE ON APPLE TREES.—A Cleveland correspondent recently wrote to us about an excrescence on Apple trees, to which we replied in our February number. Since then, he sends us specimens as requested; and instead of their being caused by insects, we had our suspicions that it was of fungoid origin,—as is the case with the Black Knot on the Plum. But as Mr. Stauffer has made Practical Entomology a matter of very close and laborious study, we sent it to him for further examination. It will be seen that he agree with us in opinion; and as it is now evident that we have a "knot" to contend with in the Apple, as well as Cherry and Plum, it will be well to take especial pains to keep the disease from spreading, which can be easily done by cutting off and burning the swollen parts as *soon as they appear*, and before they have *time to mature spores for another crop*:

LANCASTER, *February* 25, 1867.

Friend Meehan:—Yours of the 22d, with the enclosed excrescence, sent you by your Cleveland cor-

respondent, which he says has, for a couple of years past, disfigured his Apple trees, received.

At first sight, it reminded me of an excrescence I have met with on the Willow, (Salix eriocephala, Mich.,) produced by a fly, which Fitch calls "cecidomya salices." On close inspection, by carefully cutting down and into the excrescence, I could detect no signs of a maggot-like larva, nor, indeed, any trace of an insect production. I also noticed the fungoid aspect of its upper portion, and agree with you that it is of "fungoid origin."

The interior presented a spongy mass, like an enlargement of the pith, with an iron rust-like stain towards the exterior portions on one side. Among quite a number of fungoid excrescences, I have none that compares with this found on the Apple tree, and can, at present, assign no special name or cause of its production.

P. S.—I made a careful drawing, among a number of similar productions, both insect and fungoid.

Evergreens from Lovettsville, Virginia—*J. G. R. K.*—The specimens sent are:

No. 1,—Retinospora ericoides.
2,—Thujopsis borealis.
3,—Cupressus Lawsoniana.
4,—Libocedrus decurrens.
5,—Juniperus tamariscæfolia.
6,— " sabina.
7,— " prostrata.
8,— " squamata.
9,—Libocedrus chilensis, probably.
10,—Retinospora obtusa.
11,—Pinus sylvestris.
12,—Abies nigra.
13,—Picea pectinata.
14,—Abies morinda, or Kuhtrow.
15,—Abies alba.
16,—Thuja occidentalis siberica.

Of other evergreens, our correspondent says:

The slips of Deodar Cedar are from the only specimen I have,—about 15 feet high, standing south-east of the house, and about 4 rods from it, in a stiff sod. It has never had the leader killed. It is as brown now as it ever has been, except when it was about 3 feet high. The greatest enemy it has is a worm or insect of some kind, that eats the leaves and bark off the small, tender limbs, in the latter part of summer. I have never seen the thief.

The Sequoia gigantea, 4½ or 5 feet, is standing in a cluster of other evergreens all around it, of equal size, with a large Cherry tree, several rods off, to break the morning sun: but it looks quite dead at a distance. I sent 3 slips of it; one, perhaps, the freshest twig on the tree, and there is only 2 or 3 branches on it that seems to show even that little verdure. And there is no difference in the parts of the tree exposed one way or another. It is surely behaving very badly.

The Silver Fir,—my largest specimen some 9 or 10 feet,—is acting singularly this winter. There has been growing near, and on the south side of it, a Philadelphus, several feet taller than it, but none of the limbs were near enough to touch it. I took the Philadelphus away late last fall, and, now, nearly all that side of the Fir is affected similar to the twigs I send you. Can it be from the shade during summer on that side, or do such tricks belong to the species?

The White Pine I send you is from a specimen 4½ feet high, standing in a spot of heaviest clay soil, but very rich,—famous for the growth of wheat. A more robust and healthy evergreen I never saw. It is exposed both to wind and sun.

I should, perhaps, have mentioned that the soil of all the above-named trees are growing in, is a heavy clay loam, with a good reddish-yellow clay subsoil. The situation is elevated. Location 39½° N. latitude, subject to severe winds, which seem to do more harm to evergreens than the keen frosts. The thermometer made several low indexes this winter: white frosts with bright sun following. The 3 lowest degrees noticed were 13°, 12° and 6° below zero. But several spells of windy weather when the thermometer was nearly at zero, seemed to whip the life out of trees more than the frosts. About one-third of the Peach buds seem fresh, and also some Apricots. The wet weather of the present month (March) seems to be restoring life again where it was nearly extinct."

[The *Sequoia gigantea* sent has suffered from the parasitic fungi referred to in back numbers of the *Monthly*, and which bids fair to eradicate this noble tree from our collections. We see it suffering thus in every direction. There are, however, we understand, still a few fine specimens, as yet uninjured, at Baltimore, Rochester and other places. All evergreens suffer as your Silver Fir has, under similar circumstances. The leaves were tender through absence of light, and died away on full exposure,—as a potato sprout from a dark cellar would. The White Pine thrives well on heavy loams, provided it is dry,—wet clays are fatal to it.]

Horticulture in Kentucky.—*A correspondent at Cynthiana, Ky.*, says:—"Our Peaches in lowlands were killed by a February storm, but we have a chance yet on uplands. Vines in fine condition.

Trade has opened with us with fine prospects. Our people are fully alive to the change made in our labor system, and have gone to improving their property in earnest."

EDITORIAL THANKS—Our readers can imagine that the position of an impartial Editor is anything but a pleasant one. While we expect to make many enemies, some of them at times from the ranks of our personal friends, it is pleasant on the other hand to feel that our course meets with general approval. In the present year particularly, more than heretofore, have so many of our correspondents, thought fit to generously express themselves, kindly towards the *Monthly*, that we have been unable to return them all severally our thanks for their encouragement, and beg to do so to all here together in this place.

We may name however particularly our obligations to Mr. H. W. Ravenal, of Aiken, S. C., whose kind letter and accompanying volumes of the "Fungoid Cryptogamia" of South Carolina, we highly value; and the same of Mr. A. S. Fuller, who sends us the first fourteen volumes, bound, of Curtis' Botanical Magazine.

Many have also sent us articles to experiment with, for which always anxious to add to our practical experience, we are very much obliged, amongst others, we have some Wilson's Early Blackberry, from Mr. Collins,—Seedling Petunias, from Mr. Kadletz,—Key's Prolific Tomato, from Mr. Hovey, which we saw on exhibition at Boston last year, and admired for its astonishing productiveness; Diana Hamburg grape, and Seedling Strawberries, from Mr. Jacob Moore,—Mr. Bliss, for striped Maize,—New Melons, from Mr. E. Ferrand,—New varieties of Vegetables from Mr. Gregory,—New Seedling Virginia grapes from President of Planters Bank of Richmond,—to whom and others who have exhibited their goodwill in this or any other way, we return our best thanks.

GRAPE PUZZLES.—In our February number, page 43, the types, in the seventh line from the bottom, makes the author say "grape," when it should have been *grass:* and at page 53, second line from the top, "mushy" is printed in the place of *rough.*

GRAFTING THE GRAPE VINE.—An *Illinois correspondent* writes, thanking Dr. Stayman for his grape grafting article. He says he has often tried nearly the same way, but the graft seldom grew. He did not, however, shave the bark, as Dr. Stayman recommends, and thinks this may be the one thing wanting to his success.

"ORCHIS" AND "ROSA."—Rosa said, in our last, "Orchis should not question the sincerity of those who advertise roses on their own roots." 'Orchis' calls our attention to this, and refers to his article where he says, "I question the motives of none."

THE OLD STUYVESANT PEAR TREE—One of the greatest Horticultural curiosities of New York City, and perhaps of the United States, recently went over in a storm. It was pretty well gone with old age.

DISTRIBUTION OF FLOWER SEEDS.—We see by the New York Tribune that Mr. W. R. Prince, is again distributing freely through the country hundred of packages of flowers seeds. Their free distribution do much good—they encourage a taste for flowers amongst those who would never else care for them, and thus the circle of floral lovers is continually widened.

TEILANTHERA FICOIDEA VERSICOLOR—*C.*—We do not know, not having seen the plant,—but we suppose it is the same as what is commonly known in the chief flower gardens of the United States, a "tricolored amarantacea" under which name, or rather no name, it was distributed some years ago. That is a Teilanthera, and seems to be like the description of this new one. If you have not got it, you will find it a charming bedder.

SECKEL PEAR—*C.* asks, "Did any body ever know of a blighted Seckel?

And after all is there a better Standard tree for sure profit."

PEAR BLIGHT.—*Capt. J. S., Cleveland. O.—says:*—If we could find some preventive for blight, we would feel then as if we could afford to put Pears out, but the ill success we have had, is poor encouragement. Last year I tried on some 50 trees, Salt and Plaster equal parts, about 2 quarts to a tree, and among those I have no blight, while others I have suffered badly. May not that be a preventive?

INSECT IN AN ENGLISH SYCAMORE—*G. R., Beverly, N. J.*—Enclosed is an insect which I have taken from beneath the bark of an English Sycamore, in which it and others have been boring so as almost to destroy the tree. Can you give me its name and any way to get rid of the nuisances?

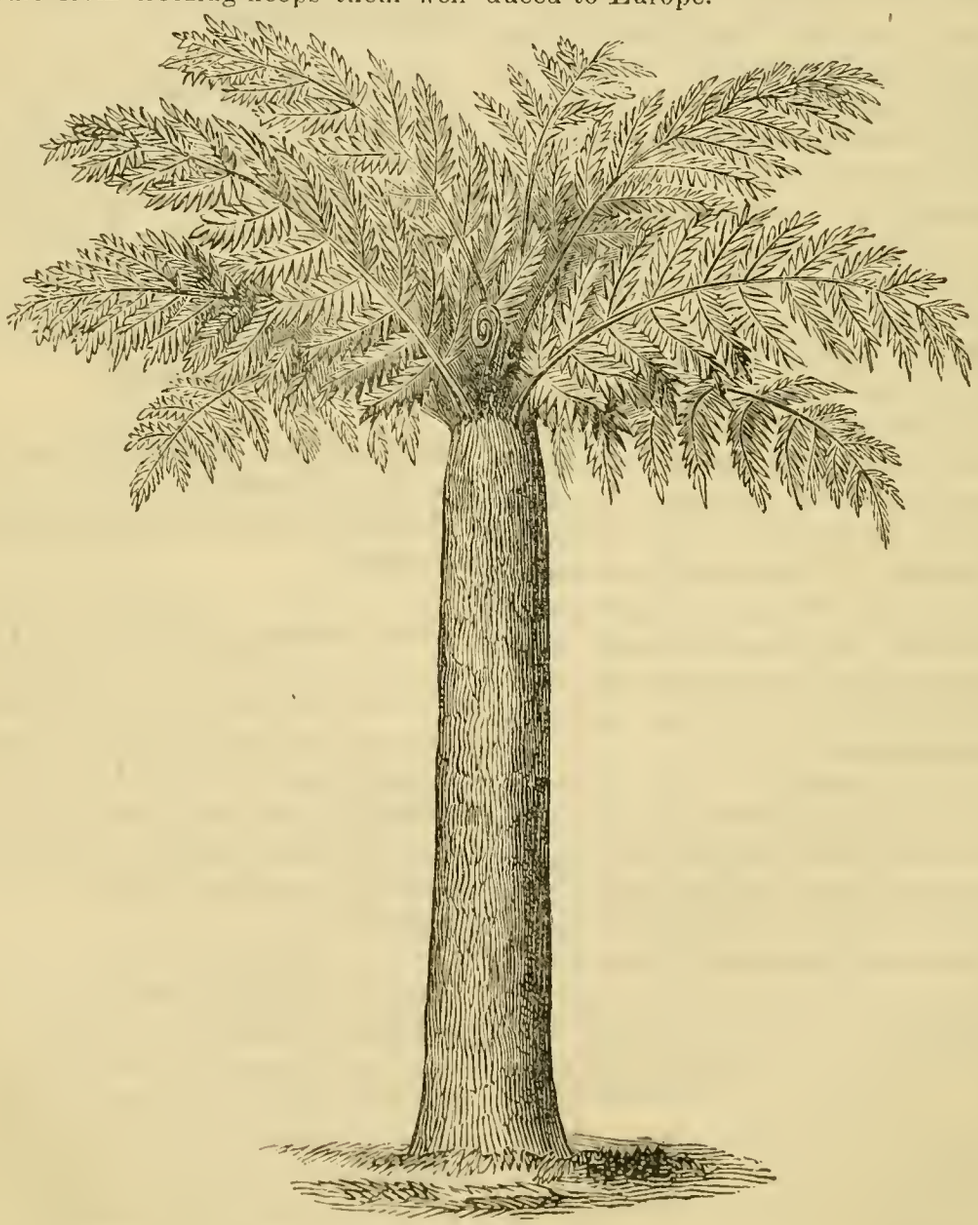
[The Larva was of some species of insect denominated borer, but which cannot be identified in its

present state. The best way to do with them is to open their holes a little with a pen-knife, and run wire in after them. Paint the wounds over and they will soon heal.

New and Rare Plants.

Tree Fern.—*Dicksonia Antarctica.*—Amongst the curiosities of the Vegetable World, the *tree Ferns* stand conspicuous. There are not many remarkable ones on this continent, although in Brazil some kinds of *Blechnum* have stems often two or more feet high; Australia and New Zealand have them from six to ten feet high, and with stems averaging three feet in circumference. The rate of growth is slow not more than two inches on the average per year. They are very easy grown, a temperature just safe from freezing keeps them well through the winter, and they are well worth cultivating in pots and tubs for the summer adornment of our grounds, as they do well in shady places. Like Oranges and Camellias they are good as an "investment"—a man may buy them at a low figure, and watch them growing in beauty and interest year by year, and "when he dies" he will get a very handsome amount for them, for the benefit of his family or friends.

We give a sketch of the *Dicksonia Antarctica*, of which we saw nice young plants last year in the fine collection of Mr. Robert Buist. Some of his greenhouses burning up last year, we do not know whether he has them now, but if not, with his usual energy he soon will. Amongst the tree ferns besides Dicksonia and Blechnum, we may name *Alsophila Balantinum*, *Hemetilia*, *Cyathea*, which can be had in first class collections, and some others not introduced to Europe.



Begonia Digswelliensis—This I consider to be one of the best and most useful plants which we possess for yielding a constant supply of cut flowers throughout the autumn and winter months, and these with me being in constant demand, I am able by keeping some eight or nine plants of it in a temperature of from 60° to 65°, to cut a nice quantity of flowers from them two or three times a week, and they last well in water. So vigorous is this variety of Begonia that the more one cuts it, the thicker it breaks and flowers. In addition to the gaiety of the blossoms, the foliage is beautifully green, so that when once this variety has become fairly known it cannot fail to be appreciated.—J. Ford, Brainfield, near Welwyn, in *Gard. Chronicle.*

Lilium splendidum—A record of the New Flowers of the past year must include that fine variety of Lilium auratum named splendidum, which Messrs. W. Cutbush & Son, of Highgate, exhibited at South Kensington in August last. Instead of the usual orange-colored band on each petal, this had a band of dullish crimson, which made the flower highly attractive. No attempt has yet been made to classify the varieties of L. auratum, on account of the comparative scarcity of the plant.

There are varieties extant, not only noticeable from the difference of the "marking" of the flowers, but also in striking differences of foliage, though it does not appear to have been clearly demonstrated as yet, that a variation in the length or breadth of the leaves, or a difference in the hue of color of the same, necessarily implies such a deparature from the original type of the flower as will constitute a variety.—*Gard. Chronicle.*

Datura ceratocaula.—The noblest half-hardy annual in cultivation is, in my opinion, Datura ceratocaula; and it may not be amiss to draw some of your readers' attention to it just now, at the seed ordering period. Not suited for bedding, or anything of the kind, it yet has charms which entitle it to a place in every garden where any interest and variety is sought. These are, in form and odor, of the highest type. If well grown in some rather warm spot with a rich soil, it will give forth a fragrance as valuable for the open-air garden as the Indian Daphne is for greenhouse; and the beautiful satiny pink flowers open in the evening almost as large as to cover the crown of one's hat. Sow on a gentle hotbed in April, and prick out into some quiet nook, or into the border, in May. It might be most advantageously associated with a few other hardy or half-hardy sweet-smelling plants, especially if proprietor or cultivator were fond of such.—Viator, in *Gard. Chronicle.*

Domestic Intelligence.

The Climatology of Fruit Culture.—At a meeting of the Fruit-growers', Col. D. A. Robertson said it has been ascertained by costly experiment, that most varieties of fruit trees will not survive the winter climate of Minnesota, while some few of northern origin, such as the Duchess of Oldenburg, successfully resist the rigors of our winters. It is also a matter of fact, that in climates whose winters are as cold as ours, apples, etc., thrive well, but the experiment of introducing these hardy varieties from Lower Canada, northern Vermont or Maine, has also generally proved a failure.

But these failures have not disheartened Col. Robertson, who has an abiding faith that the Apple may, in time, be educated to our climate, and that, in the meantime, there are many existing varieties, besides those already introduced, which are entirely adapted to our climate. He assumes that these varieties may be found in analagous climates. This principle has been generally recognized by intelligent horticulturists, their only error being in regarding those climates as analagous where the winter temperatures, or, still more loosely, where lines of latitude, correspond. But atmospheric moisture is almost as important an element of climate as temperature, and this principle of climatology has been very generally overlooked by our fruit growers. Guyot divides climates generally into two classes—the maritime or oceanic, which covers the sea-ward slopes of continents with the humid atmosphere of the sea, and the interior or continental climates, where a dry atmosphere prevails, such as reigns over the interior plains of Asia and America.

Now, the climate of Minnesota is a blending of these two in summer; while, in winter, the arid interior atmosphere generally prevails. It is in a corresponding geographical situation in the Eastern Hemisphere that we must seek for the climatic parallel of Minnesota, both as to heat and moisture. We, long ago, pointed out the striking coincidence both of temperature and rain measures, between the climate of Minnesota and Central Russia, and it is here that Col. Robertson is led, by his researches in Natural History, to look for the apples, pears, plums and cherries which are suited to the peculiar conditions of our Minnesota climate. The subject is one of such great importance as will justify prac-

tical investigation. For our own part, we do not in the least doubt that Col. Robertson has got upon the right track, and that, not in Illinois, nor even in Northern New York, nor in Lower Canada, but in the interior of Russia and Siberia are to be found the nurseries which will supply our fruit growers with the future orchards of Minnesota.—St. Paul, Minn., *Times.*

Fruits for the South.—A correspondent of the *Southern Cultivator* says: "*Southern seedling* fruit trees should always be preferred by our people. He recommends the Red Astrachan, the Kentucky Queen, the Magnum, the Bachelor and the Shockley, and then recommends the following, most of which are not Southern:

Of Pears—the Madeleine, Bartlett, Belle Lucrative and Duchesse.

Of Peaches—Hale's Early, the Tillotson, Early Crawford, Chinese Cling, George the IV., Wilson's September, Nix's Late, Cherry's November.

Of Grapes—the Clinton, Concord and Scuppernong.

Of the Berries—the Wilson's Albany, Longworth's Prolific and Triomphe de Gand.

Gros Colman Grapes.—We were presented today by Mr. Lamont, gardener to Mr. Zug, at Oakland, a specimen of the finest grapes we have ever had the pleasure of examining. They are of the kind known as the "Gros Colman," and some idea of their immense size may be gathered from the fact that one little bunch of four grapes weighed an ounce, and another of eighteen grapes, four ounces.

Pittsburg Pine-apples.—We have a gentleman in our midst who has for years grown tropical fruits, and whose Greenhouses now contain specimens of fruit not exceeded in size or flavor by any ever produced in the tropics or elsewhere. We refer to C. Zug, Esq., of Oakland, who was the first to attempt the cultivation of the pine apple here, and who has now brought it to a degree of perfection, the extent of which can only be appreciated by seeing and trying the fruit itself. Mr. Lamont, who is Mr. Zug's gardener, and a most experienced gentleman in his profession, showed us some splendid specimens of the fruit yesterday, which taking the season of the year into account, were something to boast of. Pine apples in December, and grown at home, are certainly a novelty, but Mr Lamont knows his business, and anything in the fruit line that he cannot raise is not worth cultivating.—*Pittsburg Dispatch.*

Foreign Intelligence.

Red Spider.—*Continued from page 94.*

Should it not be desirable to syringe, or if plants are attacked to which the soap solution would be injurious, a good remedy is to make the floors, walls, &c., wet by syringing them without wetting the foliage of the plants or trees (this should be done on shutting up the house), half filling pots that will hold 1½ pecks with fresh unslacked lime, and then filling up with water, and scattering on this one ounce of sulphur vivum. Two pots will be sufficient for a house 30 feet long, 18 feet wide, and of an average height; but if high, three will be necessary. The heat of the lime will cause rapid evaporation, and the fumes of the sulphur are carried along with the water, and, unless sulphur be votalized, it is worse than useless as a destroyer of red spider. The plants should be syringed in the morning; but in the case of Grapes coloring, fruit ripening, or plants being in flower, doing so would prove disastrous. An application of this kind should be made once a week, or twice if the attack is severe. This remedy, it should be remembered, must not be used until the leaves have attained their full size and become somewhat firm, otherwise they will be disfigured. It is more effectual when a good syringing follows, as the insects, if not stifled, are so sick as to be easily washed off.

Another method, in which it is not absolutely necessary to syringe the plants, consists in making the hot-water pipes so hot that the hand, when placed on them, cannot bear the heat more than a minute, and, after closing the house, to coat them with sulphur brought to the consistency of paint with water in which soft soap has been dissolved at the rate of four ounces to the gallon. The paint thus formed should be applied from end to end of the pipes or flues, and be slightly syringed until the house is full of steam, and, unless the fumes of the sulphur are strong enough to drive the operator out of the house, they will not destroy red spider. This remedy, like the preceding, must not be employed unless the foliage is somewhat mature, as in the case of the fruit approaching maturity or becoming ripe. Two applications will, in most cases, prove effectual.

The last remedy which I have to note is sprinkling the floors, walls, &c., morning and evening, with four ounces of Peruvian guano dissolved in a gallon of water, and especially at the time of shutting up the house. The atmosphere is thus large-

ly impregnated with ammonia, and in such red spider cannot live.

Prevention is, in all cases, better than cure, and to this end a dressing applied in winter to trees that are liable to be attacked, will be found effectual, coating not only the stems and branches, but the walls. This dressing may be made of soft soap, at the rate of four ounces to every gallon of water, with enough of this to equal parts of flowers of sulphur and fresh lime to bring them to the consistency of paint for the trees, and of whitewash for the walls. The application should be repeated on the walls and heated surface when the leaves attain their full size, and again when the fruit commences to ripen. Its action depends on the fumes of the sulphur being generated by artificial or sun-heat, and the soft soap causes the mixture to adhere; the lime, too, is a powerful remedy against spider, and its more formidable rival mildew. By thus dressing the stems and branches, the eggs are destroyed.

Lastly, daily sprinkling the floors and every available surface, from the time that growth commences, with soot water, made by placing in a cask a peck of dry soot, and pouring over it thirty gallons of water, will produce an atmosphere in which red spider will rarely appear. Soot water, with the addition of a peck of sheep's dung to thirty gallons of water, is excellent for filling evaporation-troughs, and so, too, is guano, at the rate of four ounces to the gallon of water. For syringing, the soot water should be clear, and it will not injure the most delicate foliage; but guano water for syringing, should not only be clear, but strained, and not stronger than one ounce to the gallon. Dressing with soot borders in which are trees or plants liable to be attacked, is a very good preventive; also watering overhead with guano water in the evening; but the best of all preventives and remedies is to keep the plants moist, to give plenty of air, and to maintain as cool an atmosphere as is consistent with their healthy development.—G. Abbey in *Journal of Horticulture.*

Sarracenias.—Pitcher plants are so quaint in their organization, so striking in their appearance, that they attract the attention, both of the professional and the amateur. It is hardly necessary to remind the reader that under the common name of Pitcher Plants, several very distinct groups of plants are included, and that sometimes Cabbages, Lettuces, and other plants become exceptionally, and for the nonce, entitled to the designation, inasmuch as they occasionally produce pitchers. Sometimes the pitcher is formed from the mere rolling in and union of the edges of a leaf, sometimes from the dilatation of a leaf-stalk into a funnel or horn-like tube.

The North American Sarracenias afford good illustrations of the latter, and with the closely allied Darlingtonia from California, and the Heliamphora from British Guiana, constitute a very well marked natural group, confined to the American continent, and in the case of Sarracenia purpurea extending from Canada to Florida, and thus evincing a capacity for existence under widely different climatal conditions. The headquarters of the genus may, however, be considered to be the Southern States of the great trans-Atlantic republic. The flowers of the Sarracenias are remarkable for their large petal-like, umbrella-shaped stigmas, which conceal the stamens, much in the same way as those organs are covered in Iris by the petaloid styles: but this great size of the stigma only exists in Sarracenia, and is not found in Heliamphora, while Darlingtonia is intermediate between the two in having a slightly five-lobed stigma.

The structure of these pitchers, judging from that of S. purpurea, is broadly this; there is an outer and inner epidermis, or skin, consisting of cells with a wavy outline, and permeated by stomata or pores on both surfaces; from the inner epidermis, or that forming the lining of the pitcher, project numerous coarse, conical hairs, whose points are directed downwards, as if to prevent the escape of any insect that may be enticed into the pitcher by the water therein, though it is hard to see what benefit can accrue to the plant by its thus serving as a beetle-trap. The cellular tissue of the pitcher is loose and spongy, permeated by pitted ducts and thick-walled wood cells, but destitute, so far as we have observed, of true spiral vessels. The structure of the stem is decidedly exogenous,—a point of some consequence in a botanical point of view, as it was at one time questioned whether these plants were truly Exogens or no. Since then, however, the germination of some of the species has been observed, and two long linear cotyledons have been seen. Seedlings do not appear to be common, and are unknown in this country.

Doubts have sometimes been raised as to whether the water that is found in the pitchers is secreted by those organs, or whether it comes from without. Certainly in some of the species drops of water may be seen through the transparent tube, while the mouth of the tube is still closed by the lid.

The different species of Sarracenia are distinguished one from the other by the form and arrangement of their pitchers, and the size and color of

their flowers,—the latter probably being of more consequence than the former; for instance, the pitchers of Sarracenia flava vary a good deal in size and form, sometimes being scarcely distinguishable from certain varieties of Sarracenia Drummondii; but Sarracenia flava has as its name implies, a yellow flower, while S. Drummondii has a purple one.

S. psittacina, the Parrot-like Sarracenia, is new in cultivation, having been only recently introduced into this country. Of S. purpurea there are two varieties, one wholly green the other with the pitchers of a rich purple. Of S. flava there are, as already said, apparently many forms. We need not here give the synonyms for the generally accepted names; they may be found by those who care to seek them in Torrey's and Gray's "Flora of North America," vol. i., p. 59, wherein the substance of Croom's monograph of these plants is embodied.

Some little while since the S. purpurea was recommended as useful in the cases of small-pox; but the most that can be said of it is, that it is harmless. According to the old doctrine of signatures, the spotted S. variolaris, or S. Drummondii, ought to be useful in this complaint, but we suspect they are as inert as their purple brother.

All the species of Sarracenia are now, we believe, to be met with in cultivation in this country, and it may be of service to some of our readers to give the following table by which the different kind may be easily recognised:—

1	Pitchers erect	2.
	Pitchers spreading horizontally	S. psittacina.
2	Pitchers distended in the middle	S. purpurea.
	Pitchers trumpet- shaped	3.
3	Lid of pitcher erect	4.
	Lid of pitcher bent over the mouth of the tube	S. variolaris.
4	Pitcher spotted at the upper end	S. Drummon.
	Pitcher not spotted	5.
5	Flower yellow	S. flava.
	Flower purple	S. rubra.

On the Varieties of Variegated Greens, &c., as Ornamental Plants.—Mr. M'Nab exhibited a beautiful series of specimens from Mr. P. S. Robertson, Trinity Nursery, of the variegated, tripled curled, laciniated, and proliferous Kale plants, in colors varying from almost pure white and green to beautiful rose-pink, purple and red. For bringing into more general notice the cultivation of these new favorites, the country is particularly indebted to the energetic labors of Miss Frances Hope, of Wardie Lodge, whose garden at this season is a perfect marvel of beauty, and has been so during the winter months for several years. Mr. Melville, the gardener at Dalmeny Park, has also done much to improve the breed of this new and useful race of winter decoration plants.

For a long time the tall cut-leaved varieties were very generally grown in gardens and shrubberies, but now we have four distinct races, classified by Mr. Gorrie under the following heads:—Laciniated, plumose, ramose, and proliferous or composite. The latter is certainly very peculiar, the proliferous growths proceeding, as they do, in compact clusters from the primary and secondary ribs of all the leaves. The colors in most of the above classes are also very rich, and when artistically arranged—more particularly as the cold season advances—a very pleasing effect is given to the flower garden. In the selection of plants to be seed-producers, very great care is required to see that all possess good qualities either in color or style of leaf; as one with bad properties, if allowed to get into a flowering state, will have a tendency to destroy a whole breed. But what will be found much more destructive to the successful saving of pure seed, is the seeding of a field of any of the Brassica tribe in the neighborhood, more particularly if they happen to be the common German Greens, or any of the Savoy tribe. If such should happen to be the case, the progeny of the new varieties, which have been obtained with care, will very soon become degenerated and worthless. Any very choice variety (after it has done its duty in the flower garden) should be planted at the base of the wall to seed, and separated from all other kinds; but even this caution will not always produce a satisfactory result.

The only method to preserve a favorite variety is to take the leaves and tops off, which will cause them to make numerous side shoots, which when removed, are rooted as cuttings. All the ordinary good varieties intended for seed-bearing plants should also be placed against a wall, covering them with a net, but just before the seed-vessels ripen, to prevent them becoming a prey to birds. It is not absolutely necessary that the plants be protected while in bloom. If good kinds are selected and placed side by side to flower, a slight intermixture will have a tendency to produce novelties much more than by isolating them.

While planting the young seedlings in rows for the purpose of bringing them forward, previous to taking their place in the flower garden, any that appear inferior should be thrown aside. The young seedlings generally succeed best in an open airy field, where they are less liable to become leggy or drawn

up, as happens in a closed walled garden. On the return of autumn, selections can be made suitable for the various clumps, agreeable to the taste of the party in charge of the arrangement. After running though a course of gaiety, and the season over, the duplicate plants (not required for seed) may be boiled, and economically employed for feeding pigs.—*Proceedings of Hort. Society of Edinburg.*

Horticultural Notices.

THE BAZAAR FOR THE PENNSYLVANIA. HORTICULTURAL SOCIETY.

Most of the Ladies in this and neighboring States, interested in Horticulture, under the management of Miss Percival, are exerting themselves to the utmost to make the fair one of great success. Any one who has anything to contribute towards the fair, which takes place May 29, may send the articles to care A. W. Harrison, 26 S. Seventh St, near Market, Philadelphia. The proceeds are to be devoted towards the new Hall, which is already nearly finished. We shall give the history of this noble movement some day, with due credit to all engaged in it. Seldom indeed has so great an undertaking been engaged in by men and women with no means but a zealous love of Horticulture, and seldom has such zeal been so successfully rewarded.

PENNSYLVANIA HORT. SOCIETY.

DISCUSSIONAL MEETING.

Dr. Stayman's Essay (see page 99) was listened to by a large an intelligent audience, at the Hall of the Horticultural Society, and at its close, a very animated discussion ensued, which we regret that our space will not allow our giving in full. Every speaker however united in disagreeing with Dr. Stayman, that pruning at transplanting was an injury. It was the opinion of the whole of them in a large number of cases, pruning at transplanting was the only way to save the lives of trees that had been injured in digging.

The instances cited by Dr. Stayman, of trees dying which were pruned, and of trees living when unpruned seemed to stagger the speakers, but it was so opposed to their experience that they argued "there must have been some differences besides the pruning, overlooked by Dr. Stayman; and others argued perhaps the Kansas district has some peculiar action."

The proposition of Dr. S. that pruning weakens vitality in some degrees, and often to an injurious extent, also interested the speakers, a majority of whom sustained this view of the essayist, although to many of them it was presented for the first time in this shape. The essay was considered one of the most valuable contributed to the Society, and though so many disagreed with some of the views expressed, the thanks of the meeting were unanimously voted to the author "for his very suggestive essay."

These meetings are becoming very popular and useful, and as they are free to all, it would be well worth while for Horticulturists visiting Philadelphia to attend them, the first Tuesday evening in each month.

GRAPE GROWERS' M'TING, LAKE SHORE, O.

DISCUSSION ON GRAPE SOILS, PLANTING, CULTURE, GRAPE MUST, &C.

The annual meeting of the Lake Shore Grape Growers' Association, held at Cleveland, the past month, was very well attended, and gave evidence of no abatement of interest in grape culture, although the past season was quite unfavorable for the crop. About 100 members of the Society were in attendance, and a number of visitors from abroad. Besides the regular business, much discussion was had on practical topics, of which the following are a part:—

On Soils and locations for Vineyards. Mr. Bailey of Painesville, read a brief report, giving his preference, 1st to clayey loam, 2nd loam, 3rd sandy loam, 4th stiff clay and last sand.

This order was dissented from by a number of members, especially from the Western part of the Shore district, and the Islands, many of whom count stiff clay soils the best, especially for the Catawba grape; and a majority of the meeting were evidently of the opinion that if clayey loam was the first choice, stiff clay should be second, taking the average of experience along the Lake Shore, though many had been quite successful with Catawba, Delaware and other varieties on loamy, gravelly and even sandy soils, where not wet or mucky and not too far from the lake.

Mr. Griffith, of North East, said he was not in favor of heavy clay soils, though such can be made available by deep tillage and underdraining. He preferred some of the lighter soils, as shaley and gravelly drift &c., but did not think highly of light sandy loams. But in his view the grand controlling influences in grape culture are *atmospheric.* Where these are favorable we can safely count upon fair success, on almost any of the various combinations of soils. He regarded Lake Erie as the great con-

servatory of the flourishing and highly productive vineyards upon its southern border. Its modifying influence upon the surrounding atmosphere, preventing extremes of aridity and humidity, is the key to our successful grape culture.

He would remark, however, that care should be used in adapting varieties of grape to soils; as strong growers like the Clinton, Diana and Concord, must have the poorest soils; while the Delaware needs the richest, and those of medium growth like the Iona and Catawba, soils of average quality. His own soil was materially different from that of the western parts of the shore districts; being a friable clayey loam, abounding with gravel, especially in the subsoil, giving perfect drainage. It is a drift formation 100 feet or more in depth, and sufficiently fertile from top to bottom.

On this soil he had derived much satisfaction from grape cultivation. He had committed some mistakes, and suffered some losses, from want of sufficient knowledge, but this was more than counterbalanced by successes; and with the advantages that we all now possess for gaining instruction by means that this association is calculated to afford, he thought there was little danger of serious mistakes in the future.

Mr. Parsons, of Flushing, N. Y., said he had long been puzzled with this question of soils, and had been making some experiments in planting grapes on the sandy lands of the sea shore in New Jersey, and he had been much gratified with results thus far, especially in the growth and healthiness of a young vineyard of the Delaware variety now ready to commence bearing; the soil a white sand and no manuring applied.

Dr. Kirtland suggested that perhaps the soil was underlaid with marl or "green sand" as is the case with some of the New Jersey soils, giving them much fertility.

Mr. Parsons replied that no marl had been discovered within 10 or 12 feet of the surface. He thought the proximity of the ocean had much effect, and he would insist on a location near a large body of water, as the prime requisite for successful grape growing.

Attention was called to the researches and observations of J. S. Lippincott of Haddonfield, N. J., as published in the Reports of the Agricultural Department at Washington, on the influence of large bodies of water upon the humidity and temperature of the atmosphere, and the benefits thereof to fruit crops. The opinion was expressed that such experiments and investigations were likely to lead to the most beneficial results, and should be encouraged by this and all kindred Associations, and also by the Department of the Government.

Mr. Lowry of Berlin, Erie Co., advised not to plant grapes near a "fever and ague hole" for he was convinced that whatever caused malaria or miasma in the atmosphere would injuriously affect the vines and fruit. He preferred the poorest soils for grapes—if shaley or gravelly, with some clay, all the better. Mr. Work of Cincinnati, had expressed to him a decided preference for grapes from clayey soils for wine making.

Dr. Dake would select heavy clay soil with some shale or gravel and lime. He had recently visited the grape settlement at Hammondsport, N. Y. The best grape soil there was a mixture of sand and clay with gravel and rotten slate, (shale.) But on the shore of Lake Erie, he had found the best Catawba grapes on clay soils.

Dr. Spalding of St. Louis, said his observations in Missouri did not quite accord with the opinions expressed here in regard to the preference of the Catawba for stiff clay soil. He had found it do better on friable sandy loam than on clay.

He instanced a vineyard where the same rows of vines ran over sandy loam and clay soil alternately, and the crops on the clay soil were always inferior to those on other portions. He had also observed similar results at Hermann in that State.

The best vineyards were on the hill-sides, the greater the elevation the better, other things being equal.

Dr. Warder, of Cincinnati spoke of the excellence of the vineyards on elevated hillsides near St. Louis, and other places in the West.

Dr. Kirtland of Cleveland, expressed the belief that grapes grown on clay soils possessed more of the saccharine principle, and hence were better for wine as well as for the table, than those on sandy soils. He believed this was the testimony of all experienced wine makers. A friend of his, a man of observation, had told him that apples grown on clay lands made stronger cider than on sand. He hoped that experiments in testing the quality of the Must of grapes from different soils and localities, would, before long settle this point.

On the preparation of soils. Dr. Kirtland said he was a firm believer in the necessity of a thorough drainage of all clay soils if at all flat or inclined to be wet. He had seen the stiffest clay soil become changed to nice fraible loam in a few years, from the effects of under-drainage. Other persons spoke to the same effect, and remarked that young vines were apt to be killed by heaving in winter on clay soils not under-drained.

A *Ditching Machine* was exhibited by a working model in the hall, the invention of Moon & Doan, of Wilmington, O., and elicited much commendation. The patentees promised to have it speedily introduced for service in the shore district of Ohio. It is expected to reduce the expense of till drainage over one-half, thus saving at least $50 per acre in the preparation of lands for grapes.

On plowing &c., the opinion expressed was, that since the old practice of trenching the soil by hand was abandoned, the plan preferred is, to plow as deeply as can be done with 3 or 4 horses or two yoke of oxen, then follow with a sub-soil plow in the same furrows, so as to loosen the soil to the depth of 16 to 20 inches, and harrow as smooth as may be.

Depth of Planting. Mr. Batcham of Painesville, remarked that much loss was occasioned the past winter by the killing of young vines; the severest cold 10 to 15° below 0, being at a time when the ground was bare of snow, and destroying the roots, even of quite hardy varieties, while the tops were entirely uninjured. He believed that deeper planting was the best preventive of such injury. Other speakers coincided; and Dr. Spalding said deep planting was also of advantage in teaching the roots to keep below the reach of the cultivator, in the summer tillage of the land.

In Missouri they aim to set the crown of the roots 8 or 10 inches below the surface of mellow soil, so that when it is settled firmly they will be not less than 6 inches below. Perhaps in a cooler climate and heavier soil a little less depth will be sufficient.

The best style of Plants. Dr. Spalding said, were such as had plenty of healthy roots, and a stem of new wood not less than ten inches long, so as to allow setting that depth in the ground without covering the top. He preferred plants grown from short cuttings or single eyes, if they had sufficient length of tops. Other speakers preferred long cutting plants, then removing the upper tier of roots; but it was thought this practice must injure the health and vigor of the plants. Setting the plants in furrows or shallow basins and gradually leveling up the soil after the vines have made growth, was recommended, especially if the soil is heavy or the plants are deficient in length of tops.

Some plants were exhibited grown from single eyes by DAKE & JENKINS. of Salem, Ohio, and by WM. GRIFFITH of North East, Pa., and pronounced by all present real "No. 1."

The Association proceeded to elect officers for the ensuing year, with the following results:

President—Dr. J. J. Dunham, Collamer, O.
Vice President—Capt. J. Brown, Jr., Put-in-Bay.
Secretary—M. B. Batcham, Painesville, O.
Treasurer—Rev. R. H. Leonard, Cleveland.
Directors—L. D. Griswold, Elyria; S. B. Marshall, Cleveland: J. E. Mottier, North East, Pa,; J. H. Tryon, Willoughby, O.; G. E. Ryckman, Brocton, N. Y.; M. H. Lewis, Sandusky, O.; A. Kelley, Kelley's Island.

Experiments on Grape Must. A report on this subject was presented by Dr. Beckwith of Cleveland, as Chairman of a committee, showing the strength of the must of quite a number of different samples of grapes presented for tests the past fall. The best samples of Catawba were those of Dr. Dunham of Collamer, on stiff clay soil, showing 97½ degrees, by the Oeksle scale, or 22 7–10ths sugar and 4 2–10ths acid. J. W. Dunham, same soil; 96 degrees, or 22½ sugar and 41 –10 acid.. G. Leick, Euclid, clay soil, 95 degrees, or 22 2-10 sugar, and 4 3-10 acid. O. D. Ford, East Cleveland, sandy soil, 91 degrees, 21 2–10 sugar, and 7½ acid. Several others ranged from 86 to 89 degrees.

The fruit of Mr. Ford's sample was picked Oct. 27th; the others Nov. 10th and 15th. A sample of Delaware grapes picked Oct. 27 by Mr. Ford gave must 95 degrees, or sugar 22 2–10ths, and acid 4 1–10th, A sample of Clinton grapes picked Nov. 10th by W. Rogers, East Cleveland, gave must of 80 degrees, or 18 3–10 sugar and 9 1–10th acid.

On information being asked respecting the must of Concord, Ives and Iona grapes, Dr. Spalding said the average weight of Concord must in Missouri is about 76 degrees. It is often as high as 80 and sometimes has scored 82.

Mr. Lewis of Sandusky, said Col. Waring of Cincinnatti, informed him that his Ives fruit yielded must of 82 to 86 degrees; but this might be above the average. Dr. Grant of N. Y., said Mr Werk of Cincinnatti told Mr. Mottier that he found the must of the Ives too weak, only averaging 65 to 70 degrees.

Mr. Griffith said he had tested the must of the Iona, and found it when well ripened score as high as 93 degrees. Dr. Grant, being called on, said, in testing the fruit about the middle of Sept., the must gave 88 to 90 degrees and in Oct. 90 to 34; it would go still higher at a later date.

In regard to the quality of the wine as pronounced upon by one of the best wine makers in the country, he would refer those interested to the statement of Mr. J. D. Masson, Superintendent of the Pleasant Valley Wine Co., at Hammondsport, published in

the N. Y. Tribune of Feb. 15th. It was read by the Secretary, as follows:

HAMMONDSPORT, Jan. 28, 1867.

Dr. C. W. Grant, Iona Island—DEAR SIR: Mr. C. D. Chapman brought to Pleasant Valley four samples of your Iona Wine for testing in such a manner as I should choose. After a strict examination, I have found the wine above my expectation, although they have been very high. First, it is a very pleasant wine to drink, the new samples have a delightful flavor and the old a fine bouquet. Second, it has a great deal less apparent acidity than the Catawba, is fuller bodied and richer in alcohol. The No. 1 (two years old) contains 14 6-10 per cent alcohol. The No. 2 (grapes picked Sept. 14, 1866), 12 5-10 per cent alcohol. The No. 3 (grapes picked Oct. 1, 1866), 14 per cent alcohol. The No, 4 (made 30 days after picking), 15 6-10 per cent alcohol.

The three last being new wines that have not yet finished their fermentation, and will be still richer when that is completed, especially the latter. The older wine of 1864, has improved a great deal by age, and is the best wine I ever drank from native grapes, notwithst nding the unfavorable circumstances that always attend making it in small quantities, by which a portion of strength and all good qualities are lost. I would be very much obliged to you for a small quantity to make into sparkling; I have no doubt it would be No. 1, and as much above all others as the still wine is. J. D. MASSON.

The Wine Tariff. The subject of duties on foreign wines was discussed at some length and a memorial adopted and signed asking for a higher rate of duties on imported wines, as a means of protection to American vineyard culture as well as affording revenue to the government.

Extent and progress of Vineyard planting. The Secretary was instructed to append to the memorial such facts as he possessed in regard to the extent and progress of grape culture in the Lake Shore district. This may be regarded as extending from the vicinity of Dunkirk, near the east end of Lake Erie, to Port Clinton at the west end; and embracing the Islands and Peninsula off Sandusky Bay; a belt of territory about 200 miles in length and 5 miles in breadth. In this district, it is found on careful inquiry in the several townships and neighborhoods, the amount of land now planted with grapes is not less than *seven thousand acres*, and the rate of increase for the past four or five years has been 1000 to 1200 acres per year, which rate is likely to continue, or to increase to all appearances, indefinitely for the future.

A *Grand Summer Excursion*, by steamboat, to the grape islands and other points of interest, was resolved on by the Association for next August, and Capt. Spalding of Cleveland was appointed to look after a steamer for the purpose with *hotel accommodations* on board sufficient for 200 to 300 persons for a cruise of 4 or 5 days. We shall learn more about this in due time.

What shall we plant? This is the most important, and at the same time the most perplexing question before the minds of our vineyard planters. Scarce a day passes that I do not receive a letter or visit from some one asking my advice or opinion, as to the best varieties of grapes for planting on the Lake Shore. If I refer them to the discussions at the meetings of grape growers, the reply commonly is, we cannot understand the value of the opinions expressed without more knowledge as to the experience and locations of those who utter them.

The best answer I can give to this question, is, to state what I intend myself to plant in extending my plantation the present spring, the object being *fruit*, for the market. I am preparing to plant 2000 Iona vines and about as many Delaware, with a few hundred Israella and Diana for early and late.

My rule is to plant none but first rate grapes; for I cannot afford to risk the expense of bringing a vineyard to bearing, then to have only second or third rate fruit for sale for a life-time afterwards; and it is certain that the people in our cities will before long become educated to a higher standard of grape taste, so that some varieties now deemed "good" will be banished from all respectable society.

The Catawba is a good grape, when fully ripe, but too often fails to ripen perfectly here. The Delaware also is of the first class and does finely in this district. It only lacks size of berry and sprightliness of flavor. The Iona is free from all defects in its fruit, and from three years of trial, we see no reason for apprehension that the vine will be liable to fail in our Lake Shore region; and if it is likely to fail elsewhere there is only the greater motive for our planting it largely here, for we shall then be the more certain of having the best of the markets for our grapes and wine.

If wine-making was my object I should still plant the Iona in preference to all others for this region; for besides my own judgment I find our most intelligent and experienced vignerons like Mottier and Griffiths, in spite of their prejudices and the high price of the vines, buying and planting the Iona by the ten thousands, and avowing their convictions that this is to be *par excellence the grape* of the Lake Shore, both for the market and for wine.

THE
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DEVOTED TO
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THOMAS MEEHAN, Editor
W. G. P. BRINCKLOE, Publisher.

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Hints for May.



FLOWER-GARDEN AND PLEASURE-GROUND.

Throughout the Middle and Northern States, May is the great month for flower gardening.

Fresh soil is very important. Things seldom do well two years running in the same place. Have a care that the roots of neighboring trees do not get into the bed; they rob it and dry it, and the flowers dwindle and die. If beds are near trees go round the bed once a year with a spade and cut off all the roots that may have strayed into the bed. This is very important in beds of evergreen shrubs, like *Mahonias*, *Euonymus* and *Rhododendrons*, which like shade, but not dry, impoverished soil.

Leaf mould is good for flowers if two or three years old, and very much decayed; when but half rotten it is an injury. Rotten sod is the best soil for flowers; and cow manure, which has lain two years to rot, the best fertilizer. Where rotten sod is not easily obtained, the edging parings of walks may be preserved in a heap for flower purposes.

In planting out flowers don't take them at once from the hot house to the open ground, set the pots out for a few days in a cold frame with plenty of air, or under a tree in a sheltered place. Before turning them out of pots, water; and when set in the earth, press the soil very hard about the flower roots. If the ground be dry, the earth cannot be pressed too hard.

Don't make the beds very high, or the rains in summer will run off too rapidly. After smoothing the surface peg down the plants as much as possible so as to cover the surface soon. The plants also push out side shoots easier. Where small twigs can be had, split and double them like hair pins, for pegging down; where these are not at hand, small pieces of bast mat or twine, doubled and dibbled in the earth by the ends, make very fine pegs.

In this climate, Hothouse plants often make noble bedders. The Chinese Rose, Hibiscus, is a first class thing, making a gorgeous show all summer. The Geranium, also is getting immensely popular. The tree Carnation is also in much request. The Madagascar Periwinkle, rose and white, is also now often seen in beds and masses.

Climbing plants grow faster on trellis than if left to themselves; stick them in as soon as the climbers are set out.

Deciduous trees can be safely transplanted after the leaves have pushed, and up to the first of June; but the new leaves must be taken off, and the young shoots shortened. In a few weeks they will push out a new crop of leaves. According to "natural laws" as laid down in the books, it would injure the trees very much; but, after a ten year's observation of the facts, we do not find it hurts the vitality of the trees very much, while few ever die so treated. Evergreens seem to do better in May than in any other spring month. Of the newer evergreens, Thujopsis borealis, Cupressus Lawsoniana, Libocedrus decurrens, Thuja ericoides, are really good additions to our list.

Tuberoses, Gladiolus, Tigridias, Dahlias, and other bulbous things which cannot be put out till the ground gets warm, ought not to be kept out of the earth any longer than necessary. It was once supposed they thrive best in poor soil—an error: they love rich food.

Mow lawns very early the first mowing; or at every at every subsequent mowing, the lawn will look brown: a thin sprinkling of salt is good for the lawn, just enough salt to see the grains on the surface about a quarter of an inch apart. An over-dose will destroy the grass. Frequent rolling is one of best ways to get a good close sod. When coarse weeds get in the lawn, hand weeding is the best remedy.

FRUIT GARDEN.

In this part of the world the Black Knot on the Plum and Cherry commences to work in May. A mere sappy abrasure, green and spongy, first appears above the bark; cut it out and burn as fast as it appears. It is no use to cut it out after a month old.

Look sharp after insects. Last year we introduced petroleum as an insect destroyer. It is the most valuable discovery of modern times to the fruit grower. In over-doses it is like tobacco, sulphur, and others, fatal to the life of the trees. We have found that just enough to make a barely purple tinge on the water used for syringing is effectual in destroying most insects. If one dose does not do try another the next day. Better use a light dose twice, than one heavy one, which kills plant and insects both.

Watch all young fruit trees against bearing too abundantly while young, or the first season after planting. There can be no objection to the ripening of one or two fruits on a tree the first season of setting out, in order to test the kind, or to administer to curiosity, if the tree be otherwise growing freely. If little growth is making, no fruit at all should be permitted. It is a better practice to disbud or take out soon after shooting all shoots that are needless to the perfect shape of the tree, than to wait till fall or winter. The pruning knife need then only be used to shorten a branch in to where several branches are desired to push, or to induce a more vigorous growth from the pruned parts. In the gooseberry, raspberry and strawberry also, no more shoots should be suffered to grow than will be required to bear the next season.

Where water can be commanded, there is nothing so profitable as to well soak the soil about small fruits; first about the time that they have set their fruit. Much of the value of this operation, however, will depend on the nature of the soil. The advantages are least in a tenacious, and greatest in porous soil. It is said that an animal derives most benefit from food when it is hungry before it begins to eat: it is certainly so with plants. Water applied to soil already wet is an injury; and water never has so telling an advantage on vegetation as when every leaf is about to wither up for the want of it. A plant that never seems to want water is in a very doubtful condition in regard to its health.

In summer pruning or disbudding, it is also worth while to watch for shoots pushing stronger than others, and always take them out. This is the only way that shoots of equal strength can be encouraged in every part of the tree. This is particularly true of grape-vines. If a shoot once get the start of the others in strength and vigor, the others will gradually get weaker to the other's increasing luxuriance.

We gave in a former volume the pith of what we considered the philosophy of vine pruning, and as we have not yet seen anything to add to or take from what we then expressed, we reproduce the remarks here.

As to the best system of pruning grapes, there are several "schools," all contending that their views are "decidedly best." In such cases, we have generally found there is much to admire in them all,—situations and peculiar circumstances deciding the point in each individual instance. There are a few points incontrovertable to insure success, and it matters little what system of pruning is followed so that they are secured. First, a healthy set of roots of the previous year's growth is essential to produce vigorous start of growth the year following. Secondly, after starting, these roots can only be kept vigorous by encouraging an abundance of healthy foliage, to be retained on the vine as long as possible. Thirdly, the leaves of the first growth are at least of double the value to the plant than those from secondary or lateral shoots; they should, therefore, be carefully guarded from injury. Fourthly, checking the strong growing-shoots strengthens the weaker ones, equalizes the flow of sap to every part of the vine, and insures regular and harmonious action between all the parts. Any system that secures this, does all that is necessary for the general health and vigor of the vine; and where some special objects are desirable, such as dwarfing, particularly early bearing, productiveness at the expense of longevity, special means must be employed to bring them about.

VEGETABLE GARDEN.

In the cultivation of garden crops, the hoe and rake, should be kept continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will show a great difference in favor of the earthed-up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

Cabbage, Cauliflower, and Brocoli, are now set

out for fall crops, and Endive sown for winter Salad. Lettuce also for summer and fall use. This, however, must be sown in very rich soil, and in a partially shaded situation, or it will go to seed. Peas. Beans, and other crops, should be sowed every two weeks. They do much better than when a large crop is sown at one time, and then have too many on at one time to waste.

Melons, Cucumbers, Corn, Okra, Squash, Beans, Sweet Potatoes, Lima Beans, Pepper, Egg-plants, Tomatoes and other tender vegetables that do not do well till the sun gets high, and the ground warm, should go into the soil without delay.

Bean poles should be set before the beans are planted; and near cities where they are comparative high priced, their ends should be charred. This will make them last some years.

HOT AND GREENHOUSES.

"1st of May" is the usual time in this region, for putting out tubs and large pots kept under cover through winter, and used in summer for decoration of the grounds. Oranges, Lemons, Pomegranates, Crape myrtles, Pittosporums, Agaves, Aloes, and Sago palms are particularly employed for this purpose. Many are very much troubled about repotting them; but unless very healthy, they are often injured by too much potting. It is safest to put a few inches of well decayed cow manure on the surface, and the watering will carry the nutriment down to the roots.

Almost all plants do better in the open air in summer than under glass; but with what are called hard-wooded plants, like Heaths and Epacrises, the dry heat of our climate does not seem to agree. A partially shaded place is best for most of them, but not under the drip of trees, though many persons put them out under trees, as such shade with drip, is better than the hot sun. Plants are better also with their pots plunged into the soil, but they ought to be twisted around or taken up and reset about once a month; or the roots will so many go through the bottom of the pot as to injure the health of the plant when taken up and so many broken off at once in the fall. Azaleas usually flower better when plunged in the full sun.

There are some things which do well kept under glass all summer, as Achimenes, Gloxinea, Begonias, Ferns, &c., but it will be best to try to get as much as possible in the open air, in the first place because they are more enjoyable thus, in summer, and, in the next place, because they usually keep hardier, and clearer from insects, which are very hard to contend with, under glass, in hot weather.

Communications.

WASTE SUBSTANCES USEFUL AS MANURES.

BY DR. J. S. HOUGHTON, PHILADA.

Read before the Pa. Hort. Society, March 5, 1867.

The subject of Manures, though it commends itself but little to the general attention of mankind, is one of commanding interest to the cultivators of the soil. We *must* give it attention, whether we like it or not. In our relation to this matter, we are like the hero in the old Fairy tale, who, in his search for the Garden of Eternal Delights, was compelled to eat his way through an immense mountain of unpalatable rice before he could enter the land of perennial flowers, where the gorgeous Plums and golden Apples blossomed.

In all large towns and cities a great variety of substances may be obtained, of a waste or refuse character, which possess no small value as fertilizing agents, when applied to the soil of the garden or farm. The art of increasing the fertility of the soil by the application of manures of this kind, though much studied by scientific and practical men, is still involved in some degree of mystery and uncertainty. The product of the stable and barnyard is admitted by nearly all our most distinguished farmers and horticulturists to be the most perfect fertilizing agent, take it all in all, that can be found. The chief difficulty about stable manure is, that it requires a vast amount of it to elevate the productive power of the soil to the highest point of fertility, and hence the expense renders it too costly for even market gardeners.

It may be a question, also, whether this much lauded product of the stable would, alone, be capable (if employed in even an unlimited quantity) of maintaining a market garden at the common point of productiveness for a long series of years.—Whether this question has been settled by actual experience I am not aware.

Next to stable manure, the product of the cess-pools of large cities has been supposed to possess a higher value as a fertilizing agent than any other material,—and, indeed, in an economical point of view, it is preferred, by market gardeners, to the first named substance. I was surprised to learn, from a recent work by Peter Henderson, a distinguished market gardener of New York, that the richest product of the cess-pools, when applied as as manure upon market gardens, fails to maintain them, for any long period, at a profitable point of fertility. In other words, that market gardens

manured with even extravagant quantities of such material, decline in productive capacity to such a degree, that the gardeners are compelled every few years to change the character of the manures employed.

This is a most instructive fact. My own observation of market gardens had impressed me with the idea that manures were applied, on nearly all of them, in a most wasteful and unscientific manner, and that, as a result, the lands were in what might be called a *diseased* condition. Still, I supposed that they might be denominated rich, and would, by rotation and good culture, produce maximum crops, even under a continuance of the same system of manuring. A scientific man would, of course, have resort to lime, soda, potash and bone dust, as a corrective of this *diseased* condition, so to speak; but I would not readily doubt the intrinsic value of the manures employed.

The statement made by Mr. Henderson is so new and so striking that I quote the language:—

"In applying manures to the soil," he says, "we have, long ago, discovered the great importance of an alternation of different kinds. When I first began business as a market gardener, I had opportunities of getting large quantities of rich material from the scavengers of Jersey City: this was mixed with stable manure, charcoal, saw dust, or any other absorbent most convenient, and applied, so mixed, at the rate of about 30 tons per acre. The crops raised with this manure were enormous for two or three years, but it gradually began to lose its effect; and, in *five years* from the time we began to use it, it required nearly double the weight of this compost to produce even an average crop."

Mr. Henderson adds that, with the soil abundantly supplied with rich composts, he has found the use of guano, at the rate of 1,200 lbs. per acre, and bone dust, at the rate of 2000 lbs. per acre, highly useful in alternation, or in combination with even stable manure.

I have made these preliminary remarks for the purpose of showing that even the best (or richest) manures, when employed in an uskillful manner, are not sure to produce the desired result, in high farming or gardening,—and I hope, also, to show that some waste substances, little esteemed by many persons, possess a very high value as manure,—at least when used in combination with the usual manures of the garden, in that admirable laboratory, the compost heap.

I now proceed to the enumeration of "Waste Substances":—

Tanner's Waste.—The hair, pieces of skins, and effete lime, produced as a waste by tanners, properly composted, has a value far exceeding its usual cost, when compared with stable manure. It has long been sold in this city at 50 cents per horse-load. It should be mixed with loam, and frequently turned until well decomposed. As a permanent fertilizer, it is of much value, on nearly all soils and for all purposes. The waste produced by morocco dressers and furriers is more valuable than that from common tanneries.

Brewer's Waste.—The waste Hops of the breweries form a valuable substance. It is especially useful as a top-dressing or mulching for Strawberry beds,—in winter to protect the plants from the frost, and in summer to keep the fruit clean and to shade the soil. The chief constituents of Hops, when decomposed, is about the same as those of leaf mould or rotten straw,—perhaps less varied and important,—but still they have been found highly useful as a fertilizer, when ploughed in, in large quantities upon the richest market gardens. Chemistry alone is not sufficient to explain some facts like this.

Old Lime Rubbish—The plastering taken from old walls, especially that which contains hair, is an article well worth gathering for many purposes, —more particularly, for the fruit and flower garden. I have come to the conclusion that effete lime, or old lime, that which has been burnt and slacked for a long time, is much more valuable than is commonly supposed. Lime, when united with sand and hair, in plastering mortar, produces, no doubt, nitrate of lime, and valuable silicates and sulphates, which renders old lime rubbish more valuable than even fresh burnt lime. Fruit trees, flowers, and even vegetables, seem always to luxuriate in old lime, such as old shell beds, the site of old buildings, &c. Some remarkable instances of this might be cited. Old lime rubbish should be pounded up and screened, and made as fine as possible before it is used. It will be found most useful, perhaps, in very rich garden soils, or in those which are close, wet and heavy.

Pork Packers' Salt.—The refuse salt of the pork packing houses may often be bought for one-third the price of clean salt, and in small quantities, is highly useful. This salt contains much fat, blood, and animal matter. Strewn upon the garden at the rate of 5 to 10 bushels to the acre, in the Fall or early in the Spring, it has the effect, in most cases, of driving away cut-worms, and other injurious insects; it keeps the soil moist, and it aids in the chemical actions which are constantly going on in the soil. My opinion is, that it aids materially in

the decomposition of the rocks or silicates in the soil: and no doubt also effects useful combinations with nitrogen and other elements. Ten bushels of salt per acre should not be applied just before sowing seed, as that quantity might prove dangerous to vegetation, at first. Smaller quantities may be applied every year.

It is chiefly, however, as a useful agent to mix with fresh lime, that I would recommend refuse salt. One bushel of salt mixed with three bushels of fresh lime, and at once slacked under cover, and frequently turned, makes a compost, so to speak, of great value. As an agent for decomposing sods, or other rough vegetable matter, it is almost equal to potash or wood ashes, and vastly superior to lime alone. As a fertilizer, also, applied to rich garden soil, especially sour soils, it is of greater value than lime, and much more economical; for five bushels of it will do the work of twenty bushels of lime.

I may here remark that, in my opinion, the application of lime is too much neglected by gardeners, both in the garden and compost heap; and I will further add that it is probable that there is not so much difference, as has been supposed, between fresh or caustic lime and old lime or slacked lime. Indeed, I am inclined to think that ground limestone (which has never been burned) and ground marble may be quite as useful, in the hands of the gardener, for many purposes where the slow action of lime is desired, as even freshly burned and freshly slacked lime, if not more so. This is a point worth looking into.

Old lime rubbish and effete lime are particularly acceptable to the roots of fruit trees, grape vines, and soft-wooded plants.

One or two more hints on lime. It is very desirable as a top dressing for lawns. A perfect piece of lawn grass can scarcely be obtained without it.—The application should be light, and frequently repeated, and the lime should not be too caustic.

Mr. Henderson, in his recent work on Market Gardening, before referred to, notices the remarkable fact that there is a large tract of land occupied by market gardeners, at Communipaw, N. J., the soil of which contains a large amount of shell lime, deposited from the ocean,—and there, the disease known as "club root" in the Cabbage has never been seen, although crop after crop of this vegetable has been taken from the soil for many years. Mr. Henderson, hence, rather rashly assumes that "club root" is caused by an insect, and that shell lime is a certain remedy for it. He does not prove the existence of the insect, nor does he show, by other cases of cure, that lime is the sure remedy. The fact which he states respecting the Communipaw soil is, nevertheless, a valuable one.

Brick Rubbish.—Old brick rubbish, especially that of soft bricks, is not without value as a fertilizer in the garden. Brick rubbish is, of course, *burnt clay*, and furnishes, at least, a silicate of alumina, and some lime, potash, magnesia and iron. Under the influence of decaying vegetable matter, brick rubbish will be decomposed in the soil, and will yield up its inorganic constituents to plants in the same way that decaying rocks do. On rich, heavy and moist soils, I think brick rubbish will pay for handling.

Rotten Rock—Similar to brick rubbish in quality and in value is rotten rock, or the soft surface stone of some quarries, consisting of shaly and micaceous lime stones, which are easily broken with a hammer. This sort of rock, when applied to soils rich in vegetable matter, is readily decomposed, and yields mineral substances of much value to trees and plants.

Old Headland Sods and Turfy Loam.—The waste land along fences and headlands produces a material, known to gardeners as "Turfy Loam," which, in some respects, has no equal as a fertilizer for certain purposes, in potting and making borders for plants, and can scarcely be imitated, with success, by any admixture of other ingredients, by either practical or scientific men. "The top spit of an old pasture" has been distinguished, time out of mind, for peculiar and mysterious virtues, which no compost could equal. Simple loam, stable manure, sand and chopped straw, mixed and turned for several months, in a theoretical view of things, ought to be quite equal to the chopped sod from old headlands. But gardeners, generally, will not admit this to be the fact,—and they are probably right. I am rather of the opinion that the sod of the old headlands (say 20 years undisturbed) may be considered as a sort of natural laboratory wherein Nature has composted and prepared vegetable and mineral matters, in her own skillful and peculiar way, and that the product is something beyond the art of man to imitate. On that old headland the grass and herbage have grown up and died, year after year; the rains and dews, the frost and snow, the chemistry of the atmosphere, have all worked their slow but unceasing and powerful agencies; the poor earth-worms has gone up and down, day after day, chewing up the vegetable fibres and even the sand, and casting this comminuted food upon the surface of the sod; thousands of insects and larvæ, some of them encased in phosphorated shells, have died and decayed in the grass and soil; the very sand itself, and the

rocks in the subsoil, have decomposed, and yielded up their precious elements of fertility; chemical changes, as varied as the seasons and the changes of the moon, have taken place in sod, and blade of grass, and fibre of root, and in the particles of soil and rock, until, at last, this precious "*bit of turfy loam*," which the gardener prizes so highly, has been elaborated,—possessing a sweet and occult power to revive the exhausted garden or the perverted soil, just as pure air, sun-light, pure water, and the sweet influences of Nature always have power to restore diseased and perverted organisms, in man or plants, the world over.

Pure Brick Clay.—Pure clay, such as is used for making bricks,—the most solid, pure white or colored clays,—(I do not mean clayey loam,) is an article whose value in the compost heap is but little known. In my opinion, it is more valuable than that much coveted material, leaf mould, or fresh wood's earth, for many purposes, and but little short of old sod as a fertilizing agent. As an absorbent of manure it excels loam, charcoal, land plaster, or any other substance that I know of; but to obtain its best effects, in this last respect, it should be mixed with old, well rotted stable manure or leaf mould. Pure brick clay is a compound of alumina, lime, potash, silica, magnesia and iron. It may be called the strongest element of all strong, rich, loamy, clay soils. It is not only in itself very rich in the elements of fertility, but it possesses the power of seizing and holding ammonia, and the acids and salts which promote fertility, with a tenacity possessed by no other constituent of soils. When dug out of the clay bank and exposed to the action of fermenting manures or of frost, pure brick clay crumbles into an almost impalpable powder; and when mixed with rich composts, absorbs, with great avidity, the valuable gases and soluble mineral substances, yielding them up again only when attacked by the roots of living plants. As an absorbent material for compost heaps, (I repeat) I think it has no equal; and when saturated with the essence of manures and of guano, I think it has no superior for almost any purpose, especially on light or sandy soils. Applied as a top dressing to grass, after having passed through the compost heap, its effects will be found truly remarkable. I formerly thought that leaf mould, wood's earth, and old sod were the most valuable materials, after stable manure, that could be employed in the compost heap; but since I have discovered the virtues of pure brick clay, I care but little for those substances, except as a useful addition to the clay. Give me plenty of pure clay and rich manure and I can easily dispense with leaf mould and hotbed material.

Tan Bark—I do not hold this substance in much esteem, for any purpose. The market gardeners, who have tried it to some extent, all declare that it renders the soil sour and full of grubs. I know that many persons have recommended fresh tan bark as an excellent mulching for Strawberries, thinking it not only kept the beds clean, but also acts as a fertilizer, by furnishing tannic acid and carbonic acid. But the usefulness of tan bark, for this purpose, has been stoutly denied by others; and I must say that I favor this latter opinion. Many practical gardeners assert, most positively, that, when largely used, it "ruins the soil." Lime would correct much of its injurious effects, but still it is of little value.—Bark is not rich in chemical elements, its ashes, when it is burned, being small in quantity; and as a source of carbonaceous matter, it is hardly worth handling.

Refuse Charcoal.—The refuse charcoal, obtained from the rectifiers of spirits, from the Railroads where wood is burned in locomotives, from old charcoal beds, &c., is a very useful material in the garden. As a mulching about fruit trees I consider it very valuable. It keeps out frost in winter: it keeps the soil loose and moist in summer, and it does not afford a harbor for mice or insects. In the soil, it assists to promote moisture in a dry season; and by its slow decay (for it does decay more rapidly than is generally supposed) it yields carbonic acid gas to plants, and greatly assists in the decomposition of vegetable and mineral matter. It is an excellent mulching for Strawberries, in winter or summer.

Road Sand.—The sand obtained from turnpikes or roads macadamized with any sort of stones like granite, hard blue stones, very difficult to break and pulverize, has a peculiar value. The grinding of such rocks or stones under the iron-rimmed wheels of wagons, the wear of horse shoes, and the mixture of this ground rock with the manure scattered along the roads—produces a compound which is found to be highly acceptable to trees and plants. The granite rocks, we know, is rich in potash and silica; but it is not these elements alone which give this road sand its peculiar value. By the process of grinding and triturating inert substances, such as oyster shells, charcoal, quicksilver, we develope medicinal and other virtues which these substances do not possess in their crude form. And so it is supposed to be with road sand. By the constant grinding and triturating of the iron bound wheels and horses' shoes, the comminuted granite becomes prepared for the

use of plants; and when this road sand is mixed with the compost heap and saturated with liquid manure, it is found to help the efficacy of the compost in a remarkable manner. Under the influence of road sand of this kind alone, it is said that, when appplied to lawns, white clover is sure to spring up in the greatest abundance and luxuriance where it had never been seen before.

Malt Dust.—In the preparation of malt for the use of brewers, at what are called Malt Houses, there is produced an article called Malt Dust, consisting of minute fibres or roots, which start out from the barley when it is partially germinated in the lofts. This material is much employed in England to absorb liquid manure and to form a mulching for potted plants, in the greenhouse and in the orchard house. It is a very neat material for this purpose. It does not readily ferment: it is a good absorbent of liquid manure, and, when decayed or decomposed, is somewhat more valuable than common leaf mould. In this city, it is much fed to cattle, and the price is too high for ordinary use in the garden. It sells for about $20 per ton, and I am told it requires more than 100 bushels to weigh a ton.

Cocoa Nut Fibre or Refuse.—In England, Cocoa-Nut fibre is much employed in greenhouses, especially in striking cuttings. It is said to be valuable, because it never generates fungus. I am not aware that it can be obtained, in any quantity, in America.

Wool Waste.—The waste and sweepings of woolen mills, when free from dye-stuffs, may be considered a valuable manure, though rather unpleasant to handle. The waste is generally bulky, but rich in fertilizing properties when well rotted. As a mulching for fruit trees and grape vines in pots, I have found it very useful, as it decays very slowly.

Sulphated Marble Dust.—In the manufacture of what is known as Mineral Water and Sarsaparilla, sulphuric acid is poured over ground marble in order to liberate from the marble the gas with which the bottles are charged, and the result is a semi-fluid mass of sulphate of lime, having all the essential qualities of plaster of paris, or land plaster. In the making of the so-called Aerated Bread, the same process is performed,—and sulphate of lime of the same character is produced. This sulphated marble dust has generally been treated by the manufacturers as a waste or worthless substance; and hundreds of tons have been thrown out upon the public commons. Manufacturers of artificial manures have, of late years, used some of this waste; and other persons who knew its value have collected it. Its precise manurial value I cannot state, but it is evidently worth handling when it can be had for a small sum per ton. The real action of plaster of paris, which it closely resembles, is not fully understood by even the most intelligent farmers and chemists. As an absorbent of ammonia it is not now held in so much estimation as formerly. Still it is a very useful addition to the compost heap. The usual rate of applying plaster, say one or two bushels per acre, is too small to be of any perceptible effect, one way or the other. A ton per acre would not prove injurious to clover, or any other crop.

Iron Filings.—Iron filings and iron turnings, from the machine shops and blacksmith shops, are probably useful, in very small quantities, applied to grass lands, gardens and orchards. They may also be introduced into the compost heap with advantage.

Old Chip Rubbish.—I mention this to warn gardeners against it. Many persons think decayed chips and decayed wood or sticks useful as an application to the garden and to the orchard. This is, probably, a great mistake. Even if well decomposed, this material would be too poor in fertilizing qualities to be worthy of any consideration; but in the half-rotted state, in which it is usually seen, it is a prolific source of the most dangerous fungus growths, which assail the roots of nearly all plants, but especially bushes, shrubs and trees. Old chip rubbish should never be admitted into the orchard or garden. Even brush drains, which are sometimes made in gardens and orchards, I look upon as exceedingly dangerous. Thousands of shade and fruit trees have been destroyed by the fungus generated by decaying chips, brush and old roots.

Glue Waste, Wood Ashes, Animal Char coal, from the Sugar Refiners, Bones, &c., are now so well known, and so much economized that they can scarcely be considered as waste or refuse substances; nor can they be obtained, as a general thing, at reasonable prices.

To the eye of the scientific gardener there is no object of greater or more varied interest than the well managed *compost heap*. Stockhardt, in his Chemical Field Lectures, very elegantly and forcibly says:—"From the disgusting substances of decay spring again the living wonders of the Vegetable World."

But it is not as a mere mass of decaying substances of an offensive character, that the scientific gardener views his manurial compost. He sees, in the compost heap, not decay, but chemical change.

He sees, within that heap, not vile garbage and offensive waste, but sweet and animating ammonia, pure lime, potash, soda, phosphoric acid, the rare and useful elements of vegetable life and vegetable fibre.

He looks beyond the immediate decay into the very heart of Nature, and sees the genial gases, and the indestructible mineral agents now, by the act of decomposition, being set free from the organic forms which they have assisted to create, and standing marshalled, as it were, on the verge of a new creation, which it is his noble office to inaugurate. In the presence of the compost heap the olfactory nerves of the scientific gardener may be exposed as much as other men's, but "their sense is shut." The influence of habit, in this respect, is wonderful. I have read of a band of distinguished Esquimaux who, upon being shown all the delights and splendors of Paris, its gay streets and gardens, and brilliant saloons, begged to be permitted to retire, for a time, into a darkened room, in order to enjoy, in their peculiar way, a good feed of train oil and tallow. The scientific gardener does not belong to this low order of mankind; but still he is not disturbed by disagreeable emotions, as many other persons are, by the sight of decaying organic matter.

An eminent writer on the Philosophy of Pleasure says:—

"Some of the most delicious perfumes and flavors, as those of the Pine Apple, can be made from the most noisome substances, with the slightest chemical changes. A few years ago there were sweetmeats held in great regard by the palates of the young. They were called Fruit Drops. Among them was a ball of sugar, shaped like a pear, and it had the perfect flavor of the old French Jargonelle. Suddenly these fruit drops went out of repute; nobody would buy them; hardly would one venture to speak of them; the confectioners, who had invested in these wonderful sweetmeats, found that their stock was useless. In a single night they had been blighted. A chemist had been heard to say, in a popular lecture, that he could go into any stable, and take from its drains a product which, by a very small amount of alteration in one of its elements, to be expressed by the veriest fraction, he could convert into these delicious fruit juices. Intelligence of this fact speedily spread far and wide, and all the little boys in the land resolved that, henceforth, for them, there should be no more pear drops."

Now the delicious juices of fruits, the brilliant colors of flowers and the delightful aroma of grapes, all find their elements in the compost heap. Resulting from decay, they are purified by chemical change, and often are converted into brilliant crystals before they enter the substance of plants, which possess a wonderful power of selecting what is suited to their nature, and rejecting what is injurious and offensive. So that the plant, or flower, or fruit, which is produced by these agencies, is as pure as sunlight itself.

But the compost heap need not be an offensive object. Put into it all the waste substances, such as I have enumerated, that you can find—recollecting that the heap does not absolutely *create*, and, therefore, cannot make much out of little,—and do not forget constantly to add fresh lime, or lime and salt,—and upon each layer of six inches or one foot of waste material, place two or three inches of old sod or good clay loam, and you will have no offensive odors arising from the chemical changes. Good strong loam or, better still, pure brick clay, will be found the most powerful and valuable deodorizers that can be employed; and even the most fastidious in such matters will then cease to complain of your compost heap.

ANOTHER NEW PLAN.

BY MR. R. BUIST, SR., PHILA.

I have always considered it questionable ground to touch upon the ideas and plans of other men, and have very frequently allowed old things to pass for new, rather than to infringe upon what may be, to your correspondents, their happy ideas. Mr. P. Henderson's article, in your March number, is rather too stale to be allowed to pass for new; and his improved greenhouse erections are only *new* to him, or those who are not familiar with such. If he would divest himself of the idea of calling those greenhouses, and give them their proper name, *pits*, every man who has experience in those erections could readily understand their construction. They are, to all intents and purposes, *pits*,—being sunk one, two or nearly three feet under ground, nine feet wide, and about one hundred feet long, with a very narrow path of two feet along the centre of each, covered on both sides with six feet sash, and no more; nothing so simple, and everywhere in use. *One table in a Philadelphia greenhouse holds as much as one house* of Mr. Henderson's.

I am credibly informed that the public have never been favored with Mr. H.'s plan: for the one he has adopted is that of Mr. Bisset of this city.—When he was struck with Mr. B.'s original idea of having his work sheds on this North end of his houses, covering in the ends of all his erections for

shelter and comfort, which was in full practice at least 2 or 3 years before those of Mr. H. who adopted them; but has not acknowledged where he obtained the idea.

In regard to their being put close together, that is not new: every establishment in Europe, erected for plant purposes, and heated with hot water, has been built in this way for the past ten years. However, either Mr. H. or his engineer has committed, to my eye, a very great blunder in having the hot-water connections outside of his pits, where there is a very great loss of heat, requiring the pipes to be covered with ropes of hay or straw to protect them from loss of heat, which was evidently required in the interior. If those who have so extensively copied him have also copied this outside connection, they have *gone it blind.*

"Every alternate sash screwed fast" is the last new idea; that, to me, is very surprising. The Pits at Col. Wauchobs, of Edmonston, Scotland, were such in 1821. Mr. Dennis, the Geranium grower, Chelsea, London, were so in 1832. The Pits, (or at least some of them) are so now, in the Wellington Road Nurseries, London. That cannot certainly be unknown to Mr. H.

The results I cannot confute, not having seen the great crop of *Bouvardias;* but allow me to say, that thirty inches of more light having been cast upon 100 feet in length, is a feat not easily repeated in producing such favorable conclusions where all other things are equal. For winter work in houses, pits and Frames, South or South-east aspects are the best; an east and west aspect is not so favorable. To me, and those who have seen the erections at Bergen, Mr. Bisset's idea there carried out is the only thing new in "*Our Plan.*"

LIMA BEANS AND TILDEN TOMATO.

BY MR. GEO. THOMPSON, CLEVELAND, TENN.

"They that be whole need not a physician." When I wrote to you on the application of sulphur for preventing and curing mildew in Graperies, I knew of several who were not succeeding in growing good grapes, because of the mildew,—and some who were abandoning grape-growing and turning their houses into greenhouses. For such as those I wrote, and not for such as your Newark, N. J., correspondent, who, I have no doubt, knows all about it.

But my reason for taking my pen now, Mr. Editor, is to write to you on another subject,—that is growing Lima Beans. In looking over some back numbers, I see one correspondent writes that he grows them in beds, and lays pea brush for them to run on, and he proposes to send you some, to show you that he could beat another writer on the subject. Now, I want to know if you ever received the beans, and who had the earliest? as I was cut off from the *Monthly* at the time of ripening, and I do not see anything about it in any back numbers that I have since had.

Now, I will give you a plan that you can grow them from two to four weeks earlier than you can by planting in the hills at once. Take pieces of sod 4 inches square, put them in a frame, grass downwards; make a hole in the centre of each piece, put one or two beans in each, and give a light covering of rich soil. Do not put them in more than one or two weeks before the time to plant beans in the open ground, or you will have them too early. The last week in April is the right time at Cincinnati, and put them out when they begin to show the point of the runner.

I see there is great difference of opinion about the Tilden Tomato. One says it is worthless with him, and another says it is the best for the amateur or marketman that he knows of. I grew it last summer, and early in the season I thought it was the best of three or four kinds, (Lester's, Large Red and Early Red,) all sown at the same time, and planted out on the same day.

The Tilden gave a great many ripe at the same time,—but, later in the season, I could not get any from them, so that it would not do to depend on it in a private place where they require a succession all through the season; but it may do for the marketman, as it gave me more in July than any other kind.

[We have never heard anything of either Lima Bean correspondent. We fear they have been devoured by the great war dragon, as so many of our friends have been. If any others tried the experiment, or, indeed, if the others are still in existence, we should be glad to hear.—ED.]

ARE ROOTS INFLUENCED BY THE GRAFT.

BY D. W. ADAMS, WAWKON, IOWA.

A few days since I received your favor of 20th ult., querying whether I had not at some time sent you some observations concerning the influence of the graft upon the roots of trees, and asking for further experience. I have no recollection of ever writing out my notes, though at one time I gave the subject much thought, and I spent some time in its investigation. The result of it all was that I could detect a very decided difference in the number, size and vigor of the roots of different sorts of apple trees when grown side by side and grafted on the same lot

of seedlings, but being unable to turn the information to any *practical* purpose, I directed my attention to other matters. Even now I can hardly see why the facts should be considered valuable, unless they might perhaps assist science in unveiling some of the remaining mysteries of plant life and growth. I frankly admit that it is all mystery to me why the roots of the St. Lawrence apple are usually so few in number and of such wonderful size and vigor.

The Northern Spy will have roots much more numerous and less vigorous, and English Golden Russet will have roots both numerous and vigorous though less in size than the St. Lawrence. So marked is the difference that there would be no danger of mistaking a bundle of one for the other, though only the roots could be seen. Of course these peculiarities are not equally apparent in each single specimen, for some *roots* have so much *individuality* that the graft but slightly influences them.

I recollect several years ago budding a row of Paradise stocks with the St. Lawrence,—mentioned above as having very few and strong roots. A portion failed to "take" and all were left together in the row, and finally all were transplanted at one time. Those with Paradise tops had numerous and fibrous roots, the nominal condition of the Paradise plant. Those with St. Lawrence tops had those great strong roots, few in number, peculiar to that variety.

One plant in particular was specially noticeable. It had a small lot of *Paradise like* roots apparently about what it should have had at the time it was worked, but about two inches below the bud a solitary *St. Lawrence-like* root had shot out and become fully equal in diameter to the trunk of the tree, and further, a broad and very distinct ridge extended from this root to the bud showing plainly the sympathy between the two.

It has been stated that a hardy graft would impart its hardiness to a tender root. This certainly is not so to any considerable extent, as I have learned to my cost. Seven years ago we had a very cold winter with little snow, consequently all tender *roots* were killed. The spring following, nursery rows of hardy sorts of apples, showed many trees that did not put out in leaf though apparently uninjured by frost; an examination showed that all below the graft was dead, such trees had chanced to be grafted on tender seedlings. Others that chanced to be on hardy stocks made a vigorous growth. A few trees pushed feebly and made a poor growth, most of these were found dead below the graft, but were sustained by a few *hardy* roots that had put out from the graft itself. These eventually mad fine hardy trees on *their own roots.*

If any one feels disposed to experiment in this direction, I would suggest the idea of grafting the Tomato upon the Potato as likely to lead to interesting results. Though these two plants belong to the same family, their roots are widely dissimilar, (it may be here remembered that the *tuber* is not a *root,*) and any variation would be readily noted, a full crop of tubers below and Tomatoes above would be eminently satisfactory to Hawk eyes, and, better yet, it would send consternation and dismay among our sworn enemies, the *Potato Bugs.*

PEAR BLIGHT.

BY MR. W. H. MILLS, HAMILTON, CANADA WEST.

The remarks, under this heading published in the *Gardener's Monthly*, for March 1867, by Mr. S. S. Cooke, of Chillicothe, Ohio, contains observations of great moment to all interested in fruit culture, they appear to offer a partial solution of the dreaded blight disease, which I fancy does not alone confine itself to the pear, but seizes upon the weakened organic condition of the apple, plum, cherry, peach, and no doubt enters organisms other than vegetable, and therefore analogy may reasonably be drawn between the effects produced by miasmatic influences, in animal and vegetable.

Taking into consideration the extended and profound observation of "Darwin" in his "Origin of Species," the mass of evidence therein brought to bear upon the assumption that the struggle for life in all organic beings is retarded or advanced by slight favorable advantages or disadvantages, is conclusive, and establishes the fact, I think beyond cavil, that a quiet and interminable, but a sure and successful war is raging throughout this planet, to bring all organizations to the status best fitted for their perpetuation.

A consideration of this phenomenon would entail a lengthened digression not suitable for your *Monthly.* What I desire is, to add to such facts as have come under my own observation, to those of Mr. Cooke's in hopes that the accumulation of such may enable some person to take the matter up, and place the subject in a light sufficiently clear to guide the propagator and planter.

In my own garden, with a gravelly and sandy loam mixed, with a fair natural drainage, situate on a gentle slope to the south, protected by a tight board fence seven feet high on the west and north, occasionally subject to the influence of fogs arising from a clay flat situate a quarter of a mile away, I planted rows of dwarf pears ten feet apart, also apples trees the same distance; two or three years after these came into bearing, almost every other

one in the same row was touched with Blight, some entirely killed, others partially. But it must be borne in mind that they were not of the same variety, but subject to the same cultivation. I have a corroborating instance in a friend's nursery two miles east of my garden, where whole lines of certain kinds were attacked, while others escaped without injury, although in the same block of trees, subject to exactly the same conditions in cultivation, soil and position.

Now, as Mr. Cooke, says, "Why some trees of an orchard are predisposed to attack, and others not, although equally exposed, seems incomprehensible."

It would indeed seem incomprehensible could we not offer very many facts, advanced by Darwin, to establish how by a great law of nature, some must live and others certainly die. There can be no doubt that each living organization has its opposing forces to contend with; so equally balanced are they, that slight advantages will afford a favorable opportunity for the one to seize upon, and appropriate as its own legitimate territory, the place occupied by its antagonist, only however in time to make way in a similar manner for a more favored organism.

From these deductions, we are able to see how those miasmatic spores would seize upon any weakened organization, irrespective of how that weakened condition originated, so long as the territory was favorable to its perpetuation. Now I contend that in this matter of Blight, man by his protection and selection of our cultivated fruits, flowers and animals, is interfering with nature's selections, and with that struggle for existence, which secures hardiness, and power to resist and perpetuate its species, instead of letting the weaker go to the wall, he fosters and protects.

If any particular fruit tree, is more subject to blight than another, man, to be successful in its perpetuation, must possess a knowledge of the causes of its disease, and these are sometimes most remote, the task will be found greater than man is equal to.

If, as Prof. S. H. Salisbury, of Ohio, says, The microscope has revealed Parasitic fungus or cryptogamus plants in trees. What does it prove? Only that the organism of the tree is a suitable locality for the perpetuation of the fungus, all it wants thereafter is a favorite and slight advantage to perpetuate itself to the destruction of the tissues of the tree. But it is no more dangerous to the life of the tree, than is the "ascaris vermicularis," to the human life, unless some cause arises which may weaken the organism of the tree or human body, this does repeatedly occur, making the work for the parasite comparatively easier.

Now, the question is, Are we, by our methods, producing these slight advantages for the benefit of the various fungoid. I have a strong impression that we are:—Stimulating manures, improper grafts, a want of proper selection in seed, and in not always discarding the weak, and in allowing indiscriminate fertilization. These are some of the operating influences to produce weakened organizations, and favorable opportunities for their destruction. We may always assist nature, but cannot take the control out of her hands, we may procure a grain of wheat, so early in maturing itself that the midge cannot therein perfect its larva, and thus defeat the insect. We have a better chance in this way to destroy the Parasite, than by any other application.

If we can select a plum or produce one by hybridization with a woolly covering similar to the peach, we will defeat the curculio. If only such of the pears or other fruits, which are not affected by miasmatic influence or otherwise be selected for perpetuation, I have no doubt that the quality of resistance would be increased in exact proportion to the quantity of care bestowed.

[We think the tendency of discovery is, that too much influence is given to "predisposing causes" in studying the injury done by parasitic fungi. Is it not probable they may take root on a perfectly healthy subject, as a mistletoe on a persimmon tree? Strong vitality might resist the imposition, and weaker ones succumb, without any actually predisposing cause. Yet as our correspondent well says, it should always be the effort of the cultivator to trace out the soundest law of health to apply to his trees, while at the same time guarding against the development of fungoid spores in every practical way. Ed.]

NOTES FROM THE REVUE HORTICOLE.

BY E. FERRAND, DETROIT, MICH.

A New Rose—At the special exposition of roses held in July last, at Brie-Comte-Robert, France, a place where the culture of the rose, for the Paris market, is established on a large scale, no less than 78,500 flowers of the utmost perfection, either new or old, were exhibited. Of this large number, so strict has been the jury of awards that only one new flower was gratified with a prize.

Here is what Mr. Carriere, the able chief of the Nurseries at the Museum, says on the subject:—

"This rose, issued of the variety Souvenir de l'Exposition, has been named Comtesse de Jarcourt;

its flowers very large and very full, open naturally well; the color is light carnation rose,—borne on a strong peduncle. It belongs to the series of roses the gardeners call Hybrid Perpetual, (or Remontant.) Let us congratulate the jury on its severity in the admission of novelties: it was prudent; for, where there are such quantities of fine things, the greatest reserve is to be observed in recommending new ones."

Nearly 1,500,000 roses are planted in the neighborhood of Brie-Comte-Robert,—a sight for those who visit France next summer.

Gynerium purpureum—This variety was produced at the Museum, and flowered for the first time in 1866. Carriere describes it as follows:—Very strong grower, making 6 feet and more in height; leaves stiff, erect, afterwards bending down, deep green; stems robust, straight, rising above the leaves, terminating by an extremely large *panicle*, (plume?), well furnished in compact, purple red. This variety begins to bloom in the beginning of September; it is a very fine plant, very likely the darkest colored of all varieties already known.

Dianthus Perpetual Hybrid de Rœuil, crossing of D. Heddewigii and D. sinensis, dwarf. Flowers large, deep velveted brown, centre red, fringed; first-class plant for edging; a very good acquisition. Is *all the time* in bloom, if taken in a greenhouse. Propagates by cuttings.

THE PSYCHROMETER IN FURNACE-HEATED ROOMS, &c.

BY J. S. LIPPINCOTT, HADDONFIELD, N. J.

It is a common observation that stove-warmed and furnace-heated apartments are unhealthy, and oftentimes uncomfortable from defective ventilation. Furnace-heated rooms are, however, supplied with abundance of pure external air, and are, sometimes, well ventilated; yet are disagreeable and unwholesome to many persons. The conditions unfavorable to health and comfort do not arise from defective ventilation, in a majority of cases, but from inattention to the conditions of moisture or dryness of the air of apartments thus warmed. The importance of due attention to these conditions must become obvious from the following considerations:

Increase in the temperature of the air will induce a change in the proportional quantity of moisture suspended therein. If it be heated, without the requisite addition of moisture, its conditions will be disturbed, and it may be rendered injurious in its action on the human economy. The *absolute* amount of moisture present is of minor importance to health and comfort; but the *relative* amount accompanying certain conditions of temperature it most concerns us to determine and adjust. When air is saturated with vapor, at a given temperature, it will receive no more until the heat is increased, when it will take up a greater quantity, if it be accessible. Thus, the air may be saturated at zero, of Fahrenheit, and yet hold less than one grain weight of watery vapor in each cubic foot: it may be saturated at 32°, and hold but 2⅓ grains; at 70°, and hold 8 grains; at 90°, and contain 14½ grains of watery vapor in each cubic foot. On reducing the temperature, air which was saturated will deposit a portion of the vapor it held, though it may still be saturated at a lower temperature, and be, therefore, relatively as humid as before. Hence the term relative-humidity, which expresses the per centage of moisture,—saturation being assumed as the unit.

From the above, we may readily understand how the air of apartments warmed by furnaces is affected thereby. Air, saturated with moisture at the freezing point or lower, (the temperature at which it is generally introduced into our warm-air furnaces,) contains from 1 to 2⅓ grains of watery vapor in each cubic foot. Passing into the air chamber of the furnace it may be heated to 100° or much higher, and enter the rooms above at nearly the same temperature; when if saturated, it could hold upwards of 20 grains in each cubic foot, or more than *ten times* as much as it contains!

If this temperature be reduced to 75° by the cool walls, the windows, &c., upwards of 9⅓ grains would be required for saturation, or nearly *five times* the amount actually present. As dry air, or comparatively dry air, seeks to become full of moisture, absorbing it as does a sponge, the walls, the furniture, and the inmates of the apartment are subjected to the action of this powerful dryer, and must suffer in consequence. Hence the parching effect upon the skin, throat and lungs, so disagreeable so many persons, and so injurious to all inhabitants of furnace-heated rooms, generally.

The vast importance of just attention to the wholesome condition of the air in family living-rooms, sick rooms, nurseries, lecture rooms, churches, school rooms, hospitals and asylums, and wherever human health may be affected by the reduction of the relative-humidity, renders any instruments by which these conditions may be determined and adjusted of great hygienic value. To horticulturists, who appreciate the necessity of preserving a certain known state of humidity, or of dryness in their conservatories, graperies and forcing pits, &c.; and to the manufacturer, who is aware of the injurious effects of a drying atmosphere upon his fabrics in the

loom or on the spindle, such an instrument offers a ready means for determining the actual state and remedying the defects of diminished atmospheric moisture.

HYGROMETERS.

Hygrometric instruments of various kinds have been devised, but have all proved unsatisfactory in practice, except that known as August's Psychrometer or, as it is commonly termed, "the Wet and Dry Bulb Thermometer," sometimes simply the "Wet Bulb Thermometer." This consists of two delicate thermometers placed near each other, the bulb of one being covered with very thin muslin, kept moist by water supplied from a vessel beneath, through capillary attraction. The dryer the air, or the farther it is from saturation, the more rapid will be the evaporation from a wet surface; and, as evaporation absorbs heat, the more rapid the evaporation the greater will be the consequent cooling of the body from which the evaporation proceeds. As, in this case, this is the thermometer whose bulb is wrapped with the wet muslin, this reduction of temperature is indicated by the lower degree reached by the mercury in its tube. This lower degree is the temperature of evaporation at the time of observation. If the air be very nearly saturated with moisture, the difference between the "wet and dry bulbs" will be very small; but the proportional quantity of humidity present *cannot* be directly determined by observing this difference. The proportional quantity of moisture present, or the relative-humidity, must be found by consulting elaborate and extensive tables, which have been prepared for practical meteorologists, and derived from experiments on the elastic force of aqueous vapor at different temperatures. To render it unnecessary to use such tables, while we attain a sufficiently accurate expression of the humidity present, and that more easily and promptly, "Lippincott's Vapor Index" has been constructed. (For the mode of using the "Index," together with directions for determining the number of grains of vapor in a cubic foot of air, directions for obtaining an approximate "Dew Point," and sundry recommendations from eminent meteorologists, see the "Index" and accompanying text.)

Having determined, by observations of the Psychrometer and the "Vapor Index," the state of the air of an apartment, as respects humidity,—if this prove deficient in quantity or proportion, a further supply should be found in evaporation from wide pans, kept filled with water by a self-acting cock,—or vapor may be supplied by means of an iron tube inserted through the furnace in the midst of the burning coal, and connected with a reservoir of water, the outer extremity of the tube opening, of course, into the room to be benefited by the arrangement.

The common practice of placing a small vessel of water upon a stove or furnace, is altogether inadequate to produce any valuable modification of the humidity of the air of an apartment. It has been shown that dry air is favorable to the radiation of heat, while moist air is an absorbent, or checks this loss of heat. Dry air, also, induces excessive insensible perspiration, while moist air acts as a regulator or restrainer of this excess. As both radiation and perspiration are cooling processes, which proceed more rapidly in dry air than in a moist atmosphere, our bodies must lose more heat, and become sensibly cooled more readily in the former than in the latter. A higher degree of humidity in a warmed apartment is, therefore, favorable to the feeling of comfort; while dryness may suggest chilliness, even at the same temperature. More heated air, therefore, thrown into the apartment, the relative dryness is augmented, the skin, lungs, &c., are subjected to a greater parching influence,—the innermost recesses of the body are affected thereby, and the whole circle of organic processes is disturbed, and the system too often prepared for the advent of diseases which sap the strength and may, finally, destroy the habitual inmates of rooms heated by the favorite furnace, when no attention is paid to the conditions of humidity present.

Note.—"The evaporation of water from the body is intimately connected with health." "The functions of the skin are interrupted, and affections of the throat, bronchitis, pulmonary consumption, pericarditis, inflammation of the stomach, and dyspepsia, rheumatism, gout, &c., are among the diseases which eventually manifest themselves." "Due regulation of the humidity of the air of an apartment is as important to the health of its inmates, as its freedom from poisonous or deleterious gases."—Dr. C. M. WETHERELL, in *Report on Warming and Ventilating the Capitol at Washington*, May, 1866.

As comfort may be obtained at a lower temperature, in rooms in which the air abounds in moisture, while the heat from furnace is also more readily and largely conveyed to all parts of the room, the consumption of fuel may be proportionally lessened.—In a moist atmosphere, a temperature from 5° to 8° lower will be found as agreeable as that generally found to prevail in living rooms as usually heated, while a marked relief from the sense of oppression known in dry apartments will be experienced. The Psychrometer or Wet Bulb Thermometer, with the

"Vapor Index," its interpreter, if properly used and their suggestions regarded, therefore, become *fuel-saving* as well as *health-conserving* instruments.

The Barometer, mercurial or aneroid, is esteemed by many as a valuable foreteller of changes of the weather. Its fluctuations are, however, but the results of changing pressure of the atmosphere at points more or less remote. These variations may not be attended by any change in the weather at the place of observation; and barometric indications of promised rain, &c., are often at fault, and the instrument has been condemned as unreliable. If, however, the fluctuations of the mercurial column be studied in connection with the Psychrometer, the causes of uncertainty will be, in great measure, obviated. No set of rules can be framed for universal application, as each district has its peculiar conditions; but *one simple rule* will be found of very general practical value as an aid in foretelling rain or snow: A *slow, steady rise* in the barometer, followed by a *fall*, if *accompanied by an atmosphere saturated with humidity*, wind and clouds favoring, will be generally followed by rain, if the temperature be moderate,—by snow, if near the freezing point. A rise of the barometer and subsequent fall will *not* be followed by snow or rain, though the wind and clouds favor, if the *relative humidity be much below saturation*. The Psychrometer thus becomes an important adjunct to the barometer, and without which, indeed, the latter insrument will oftentimes lead to erroneous inferences.

Resume.—The Psychrometer and "Vapor Index" will enable any one to determine readily the proportion of moisture in the external air, or in that of a living room, the sick room or other apartment. Their intelligent use will render comfortable and wholesome, rooms which are often over-heated and pestilential from inattention to their indications.

They will guide the nurse or physician to a better knowledge of the conditions which surround the invalid, and enable them to adapt these to his wants. They will enable the physician to sustain an artificial climate, or more properly, a really *natural* climate, in the hospital, or sick room wherein lung complaints, &c., may be more readily and successfully treated.

Their application to the *school room*, the *lecture room* and *places of worship*, will aid in preventing the mental dullness and stupor which affect pupils and an audience in rooms heated by comparatively *dry* air.

They will supply the horticulturist with instruments by which he may readily determine the actual state of the air surrounding his plants: and will enable the *amateur* florist to provide in her dwelling room the conditions of moisture necessary for healthy plant growth.

Finally, if used according to the directions, and the requisite supply of moisture be sustained, they will, by inducing a wholesome, semi-humid state of the air of apartments, enable the occupants to enjoy a greater degree of comfort, at a moderate temperature, than they have ever done at a higher one, and thereby may contribute to economy in fuel to an appreciable degree.

VINEGAR FROM THE SUGAR MAPLE.

BY J. H. HOLDING, HAMMONTON, N. J.

I find a Washington correspondent asking if vinegar can be made from Maple sap. I reply in the affirmative. When I was up at, or near, Scranton, Pa., I made some, for two seasons, that I and others liked better than the best cider vinegar. The way I found it out was this: I was out on the mountains a little distance back from the town, (on more of a botanizing tour than any thing else,) I came across a party in the sap bush having, as they termed, a good time eating maple sugar. They very kindly invited me to join them: I accepted the offer, by tasting some of their partially condensed sap. A thought struck me at once that I could make an article I have longed for ever since I left Old England. That was a good drop of table beer.

There being plenty of maples just back of my place, I went right into it, and made several barrels. It made beer more pleasant to my palate than any I ever tasted in America. In setting them away in the cellar, from some neglect, one cask got left without bunging. We emptied the first cask about the 1st of June, and on tapping the second, we found it tolerably good vinegar, but not quite sour enough. I divided it into 2 casks and put 1 gallon of vinegar into one cask, and nothing in the other, and set them both out in the sun, covering them with gauze to keep out insects.

In two weeks, the cask to which I added the vinegar, was sour enough for anything: the cask to which nothing was added but sour beer, made the best vinegar in the end, but it was longer before it was ready for use,—but much the best flavor of the two. The next season, I made some the same as for beer, but let it assume the Acetic fermentation, and we had the sour vinegar, for family use, for 3 years. I reduced some sap as for beer, but omitting the hops, it did not make a good article. We put down pickles in maple sap vinegar that kept better than in cider vinegar.

LIQUID GRAFTING WAX—A QUERY.

BY A. H., MEADVILLE, PA.

The journals tell the story of an African who, on being asked how much he had earned the last year, replied, "I agreed to work for a *seventh* of the crop, but master only grew a *fifth*, so, you see, I got nothing."

This story is recalled on referring to an article on "Liquid Grafting Wax," by Horticola, in the *Horticulturist* of 1862, p. 115, where a recipe is given as follows, viz:—1 lb. rosin, 1 oz. beef tallow, one table-spoonful of spirits of turpentine, and *seven* oz. alcohol. In the *Horticulturist* of 1863, page 123, Horticola renews his recommendation of the article, (a French invention,) but says the quantity must be *increased*, and gives *five* oz. as the true proportion. The Editor says he shall note the variation in quantity when he tries it; but, so far as I have seen, makes no report on it.

The writer has tried this winter cutting some common grafting wax, by adding the turpentine as above, and using benzole (a cheaper article) in place of the alcohol. The wax made in this way has stood the effects of the cold weather in a satisfactory manner. The effect of summer heat remains to be tested.

GOOD GERANIUMS AND HOW TO GROW THEM.—NO. 2.

BY J. C. J.

(*Continued from page* 37.)

DONALD BEATON.

This Geranium is happily named after its illustrious raiser, and, like the man, ought not to be soon forgotten. I have flowered it under glass only, where it entirely eclipses every other high colored self. In habit and shade of color it somewhat resembles Paul L'Abbe; but I have never seen a truss of bloom on any Zonale Geranium that, in size or quality, would compare with Donald Beaton. The individual blooms are very large and circular, each petal fitting, with perfect accuracy and closeness, to its neighbor, and of great substance. A truss now before me has been the object of unqualified admiration during four weeks, and is still perfect. Such duration of bloom under glass, is much to be commended. The shade of color is what I call a vivid cherry, but it will pass under a variety of descriptions. It is a lusty grower, and ought to be first-rate out-of-doors. But young plants propagated during summer, and headed back in the fall, will be a great addition to the greenhouse, from December till May.

INDIAN YELLOW, (*Beaton.*)

Watching the development of Yellow, when this sort first expanded, and seeking it in vain, occasioned some disappointment. But, on better acquaintance, I exonerated the plant and laid the blame on the sponsor. When fully expanded, there is a perceptible glitter on the high-colored red, as if a golden hue lay beneath and would fain come to the surface. This effect is novel and pleasing. My plants are stocky and low grown, imparting, on the front row of a well-filled stage, a very gay appearance to the whole house. The color is intensely vivid, contrasted alongside of White Tom Thumb, and with snow-white Tree Carnations nodding overhead. By all means, provide Indian Yellow for next winter. It ought to do well out of doors. We shall see.

MRS. WHITTY.

Pink, the base of two upper petals white. If this would bloom as freely as Christine it would be a fine thing in the house. But even a couple of trusses attract attention, the shade of pink is so pure and good. If this sort competes with Christine out of doors, we shall esteem it highly. I think it will not bloom so freely as that most generous of all the Pink Zonales.

Errata in February No., page 36:—

"UNIQUE, (Robinson's,) should be (Rollinson's,) and, at close of same sentence, for "more general treatment," read "more generous treatment."

THE BLACK CAP RASPBERRY IN SOUTHERN ILLINOIS.

BY "EGYPT," COBDEN, ILLS.

The fruit of the Black Cap Raspberry is largely grown for market here. There are several varieties of the Black Cap. The native wildlings are largely dug up in the woods, and planted by some of our fruit growers. It is claimed to ripen its fruit a few days earlier, and the high price it sells for compensating for its deficient yield.

The Doolittle Improved Black Cap is very productive; also the *Miami*, that was obtained near Cincinnati. It is a few days later than Doolittle Improved.

A neighbor firm here has a plantation of 20 acres. Part of the plants they set out were bought from Mr. Knox, Pittsburg. They are a few days later, and do not root as freely from the tops as Doolittle, but are claimed to be better bearers.

The Gardener's Monthly.

PHILADELPHIA, MAY, 1867.

☞ All Communications for the Editor should be addressed, "THOMAS MEEHAN, Germantown, Philadelphia," and Business Letters directed to "W. G. P. BRINCKLOE, Box Philadelphia."

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THE INFLUENCE OF THE GRAFT ON THE STOCK.

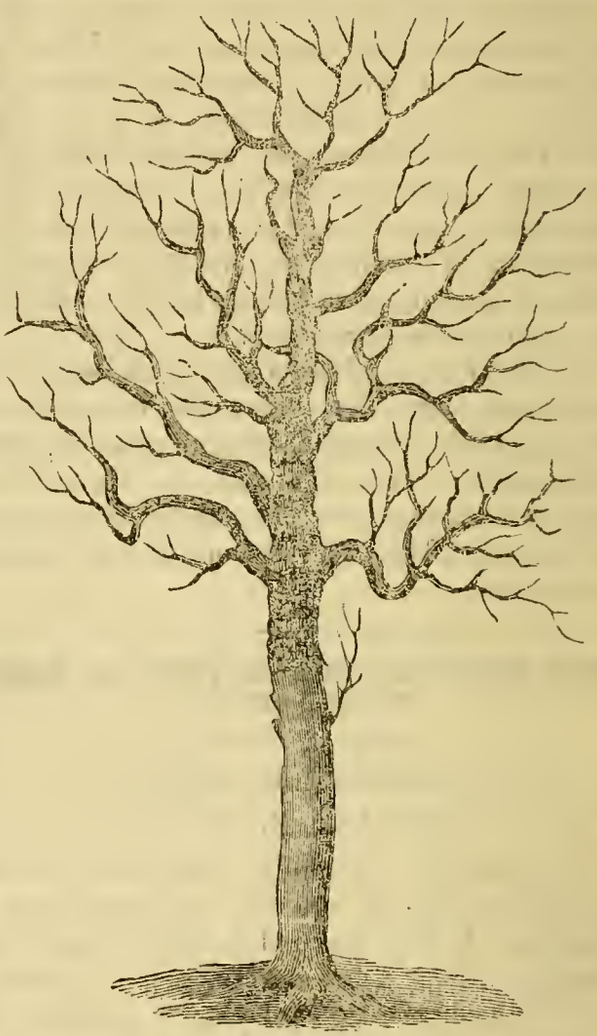
This is a question like unto which few seldom occurs, that is to say one of importance alike to the practical man and to the man of science. It has been universally believed that there is no such influence, and to this day only a few of the most progressive minds see an affirmative tendency in the question. Day by day, however, the evidence accumulates; and we entertain no doubt, now that attention is well directed to the subject, numerous observers will record facts proving beyond doubt that the influence on the stock is of the most positive character.

Several nurserymen have assured us that in digging up rows of apple trees, each variety will have its own style of roots, although the stocks be of the most diverse character, and we remember a correspondent in our paper some years back giving a detailed account of some observations of this kind; though, unfortunately, under some other heading it cannot be traced through our index. Mr. Adams also gives similar facts in our present number.

But after all there are few more curious illustrations of this view of things than Mr. Stough's Pear sprout from a mountain ash stock, an illustration of which we give herewith, showing the pear sprout seven inches below the graft on the mountain ash stock.

As some well versed in natural philosophy have considered it impossible that this pear should come out so far below the graft, Mr. S. has got a neighboring nurseryman to give us an account of it, whose report is clear as to the fact.

It is very dangerous, in the present state of our knowledge of the developments for any one to speak positively about the "laws of form," or how they operate. We see every day what are called "freaks of form,"—freaks which we look to "accidental external causes" for the origin. But, it is evident these external causes, can only develop pre-existing germs; and these germs always develop in one uniform way. The gall fly, does not make the gall, it is only the instrument of its development. Hence the peculiar form of the gall is the special prerogative of the plant, not the work of the insect, as if it were a bird making a nest. These seeds of form appear to reside in the cells, and perhaps may permeate the whole plants system, finding its easiest but not sole source of development through the seeds reproducing the individual plant.



Some years ago there was in the garden of the late C. J. Wister, of this place a tree of the curled leaf willow, (*Salix bab. annularis*) perhaps 20 years old. Then a branch strong and vigorous of the common weeping willow pushed out from near the top of the tree. Now it is evident the plant could only do this by a form seed or cell remaining in the curled leaf sprout at the original change and which must have floated in a dormant state through the circulation for so many years.

How this is all accomplished we know nothing at all; but we see enough to show us, that there are many hidden mysteries, which we may perhaps someday be permitted to unravel; but which for the present should make us very cautious about pro-

nouncing phenomena we hear of utterly impossible, when we know so very little about the possibilities of form development in plants.

EARLY VARIETIES OF VEGETABLES.

A fashion has recently become prevalent for a seedsman to attach his name to a crop of seeds, as if he were the raiser of a new variety. Thus we have A, B, C, and D's, Extra Early Pea; so and so's Cabbage, and what's his name's Tomato. It is not said so expressly, but the inference is left to the purchaser that these are *varieties*, and better varieties than previously existing. A gardener recently well remarked that allowing only one day's extra earliness to all the extra early peas in market, some one among them ought to produce peas a few days after planting; and as for the Tomatoes, many of them being thirty days earlier than others, some of them sown in March or April, will no doubt allow of their fruit being gathered actually before the seeds were sown.

Now we believe most, perhaps all, of the raisers of these extra early varieties, honestly think their plants are as early as they represent; but that they are often deceived by circumstances which they do not take into account; a good instance of this is now before us in a note from a correspondent in Delaware Co., Pa. He says, "Last year I bought of Mr. Dreer, Tilden Early Tomato seeds. They were planted earlier than Fejee or Cook's Favorite, and yet both ripened 5 or 6 weeks earlier than Tilden; it was in fact the last to ripen. I infer the seeds were not what they were sold for." They may or may not have been Tilden, but the time of ripening has nothing to do with the genuineness of the variety. If we take sugar corn and sow it very early, and then late corn and sow say about the first week in May, the latter ripens first, though, both under the same circumstances, the sugar corn ripens much earlier; and so with most early planted things, as every gardener knows they are liable to get a check by cold air or cold soil, from which they are often weeks in recovering.

To test seeds properly as to earliness it is not fair to give "one the start," for that one is, as we have seen, likely to get a check in its early struggle, which is not to its advantage. But they should be sown at the same time, together, and not only one such experiment, but many of them, tried under varying circumstances.

As to whether our readers have had other than the genuine varieties of seeds, it is not our object to discuss here. We never attach much importance to these suggestions at any rate. The man who wishes to retain sales in his own establishment, is quite as likely to insist that "he at any rate has the genuine variety," as it is likely that others "substituted other for the true kind." These are little trade "tricks," which those who employ them, must discuss amongst themselves. Our opinion is that there is more "true seeds," and less "spurious" in these cases than the people imagine, their good or ill success being really due to other circumstances.

As to *early seeds* it will be well for our readers to recollect, not to sow or plant until the earth or air be warm, or to set their plants under any conditions where they will get the least check to growth, but so to sow and keep them on, that they may from the first start grow right through without a halt to maturity. That is the way to get early crops.

RHODODENDRONS.

The Massachusetts Horticultural Society has taken the Rhododendron under its special protection, and by the generous aid of H. H. Hunnewell, Esq., a standing premium has been founded for the encouragement of Rhododendron culture. We suppose however, that unlike the Pennsylvania Horticultural Society, which allows competition for its premiums to all the United States, freely and without entrance fees of any kind, the Massachusetts Horticultural Society limits its usefulness to its own vicinity, or we would suggest that they take some notice of the very successful efforts of Parsons & Co., of Flushing, New York, in endeavoring to place these beautiful plants within the reach of all, and to make their culture simple and successful.

From what we saw and heard at Boston last year it was evident that the leading view of the Boston gentlemen and nurserymen on growing Rhododendrons was "to import them from Europe," and that no efforts were being made, or encouragement offered towards raising them at home. It is but right that the public should know that there is an American "Manufactory" for them, and that from this establishment they can be obtained at prices but little higher, when the risk of importation is considered than they may be had from Europe; and we are quite sure that if but little more encouragement were given the public spirited firm above referred to would be able to produce them at prices below what any establishment in Europe could furnish; for this is the experience of Americans in almost all branches of nursery products; with but half the sales of an European nurserymen, he sells at prices below European ones.

We were looking over some English advertise-

ments for Rhododendron prices, when we noticed a card of Carter & Co., that they were selling off stock of surplus hot house Grapes cheap, extra strong 1 year Black Hamburg &c., seven shillings and sixpence each, or near $2 in gold, or about the price of strong 2 year American in currency; and in regard to the Rhododendron in the same paper, Veitch offers mixed unnamed kinds about 24 inches for twenty-four shill'gs, or $6 pr dozen, in gold, as something particularly low; but when we consider that with the small encouragement an American Rhododendron grower receives, good plants may be furnished at about the same rates with the expenses of transportation and exchange added, of American growth, by the firm we have referred to, we think they are deserving of all the encouragement the public can give them.

A few words on their cultivation may encourage their culture, which is much more easy than people generally have the least idea. An impression prevails that they must have *shade*. This is a great mistake, they do better in the sun than anywhere, all inferences drawn from "nature" notwithstanding. But it is essential that the soil should be *cool*, that is one that will not *bake*. In this they cannot be grown at all. To have this cool Rhododendron soil, the materials are in every garden, in the shape of trimmings and pruning of trees. Let these be collected together in the winter and spring, and to make the bed, throw out the natural soil two feet deep, and throw in the branches, mixing the natural soil with the material as the branches are thrown in, and the whole rammed in well as the filling proceeds, raise the bed above the surrounding soil enough to allow for sinking as the branches rot, and then plant the Rhododendrons.

This is not much trouble to take in order to get Rhododendrons equal to the English. Too much is allowed to English climate in accounting for their success. They give great attention to soil. In some English gardens a "peaty soil" is brought hundreds of miles to make the American garden. This is not necessary to us, who have the native climate of the Rhododendrons. Wherever sticks and brush wood can be had and prepared as we have described, the Rhododendron can be grown as readily as any shrub.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Pears in Alabama.—*Our Harpersville, Ala., correspondent* writes: "If I had suspected you would have found anything sufficiently interesting in my letter for the *Monthly*, I would have been, at least, more painstaking in my chirography.

I notice several mistakes in the extract published in Feb. number. Duchesse d'Brabant d'Engheim is a summer pear of no value; whilst Duchesse d' Brabant Van Geert, of which I intended to speak, was one of the highest flavored and most productive pears I tested the last season,—about the size of "Dana's Hovey," ripening later and higher flavored than that variety. *President Parigot*, not Pres't Raugot; Gloire de Binche, Emilie Bivoort, "Poire Socquet," Doyenne du Comice and Capsheaf.

We have had a continued cold and dry winter; no very severe weather and an early spring, and vegetation advanced more than usual. Peach, plum, apricots and pears, and most of our apples all in bloom,—and now comes the "winter of our discontent." This morning, after 8 or 9 days of wet, disagreeable weather, we have a sleet and freezing weather. Our crop of fruit, of course, killed,—all vegetation, fruit and vegetables, entirely killed."

Straw Fruit Baskets.—*Mr. Atwood, of Lake Mills, Jefferson Co., Wis.*, writes in reference to this matter, on which we have had little experience. Though evidently not intended for publication, we give it place, as other parties may be able to help our correspondent with their suggestions:

"I have for some time been engaged in getting up a Fruit Basket made from rye straw. The great difficulty has been, with me thus far, in getting up machinery to make them fast enough. I want a machine that will make at least one a minute with the help of two hands,—1 qt. baskets. Those I have made are quite strong and handsome. I think I shall be able to make them large and strong enough to hold from 10 to 12 lbs. of grapes.

My idea has been that a basket of this kind would be preferable to a tight box for marketing fruit, as they would be well ventilated, and be very cheap. My object has been to get up a machine so that every fruit raiser could make his own baskets or boxes.

Could a patent be obtained on baskets or boxes made from straw, corn husks or rushes, if it can be made practicable? I would like to know whether you have ever seen anything of the kind in use for the above purpose. I may think best to give some of my experiments to the public,—if I do not conclude to secure some of the results to myself.

The want of a cheap, neat fruit box has led me to these experiments. I have, thus far, been well pleased with the results. If you should have a leisure moment, to give me your opinion. or make any suggestion on the same, it will be appreciated. I have long been of the opinion that matting made of rye straw would be useful for many purposes in gardening,—protecting plants from insects, wind and frost. Can't some Eastern Yankee get up some machine for manufacturing the same."

Black Hawk Grape.—*J. W. C., Vineland, N. J.*—"Can you give me any information about the Black Hawk Grape. I think I saw some description of it in the *Monthly*, but cannot turn to it readily."

[The Black Hawk Grape is a seedling from Concord. We have not seen the fruit yet.]

Aspect of a Vinery.—*B. J., Chester Co., Pa.*—I am about to erect a cold grapery, and have a choice of a West, South or East aspect. I supposed the South would be the best on account of the light and sun; but my gardener favors the East. We have agreed to ask you to decide for us.

[The gardener is right. For a cold vinery an East aspect is better than any other.]

Weeping Norway Spruces — *B., Frankfort, Ky.*—"When visiting the East, I am struck with the different forms of the Norway Spruces, in the large trees on old places. Some of these are quite pendulous, and are, to me, very beautiful: the others have none of this character. Are there two species of Norway Spruces? If so, why are they not offered distinct, in Nursery Catalogues? I am sure it would be a convenience to customers."

[The Norway Spruce, although classed with the monœcious class of plants, is, at times, almost dioecious, perhaps quite so; that is, has male and female flowers on separate plants. At any rate, it is only those which are abundantly fertile (or cone-bearing) which have the pendulous habit. Those which rarely bear cones are rarely pendulous. There is no way of distinguishing them while young,—as soon as they come to fruit-bearing age, which, in transplanted nursery trees, is about 10 years old, they can be very readily detected. Very coarse, straggling growers, when young, are mostly cone-bearing or pendulous.]

Indelible Ink for Writing on Zinc Labels.—In our first volume, Mr. Petticolas, of Cincinnati, gave us an article on this matter, showing that a common lead pencil was the best kind of indelible ink. We adopted his suggestions, and have, now, labels written six years ago blacker every year. The idea is worthy of a monument to the memory of this worthy gardener who, we believe, has been deceased several years. Strips of zinc, coiled around a branch will, we believe, carry the name of the tree for a lifetime, and spread out as the branch swells.

Hybridizing Ferns.—We have not been able to find the piece we promised in our last on this subject, but we give the enclosed from A. Braun's work on "Rejuvenescence."

"The interweaving of the reproduction and the individual development is exhibited very strangely in mosses and ferns. As in flowering plants, it is a single cell in which the subsequent is called forth through the influence of the male sex; but in one case, it is the primary cell of the entire generative cycle, *i. e.* of all the cells which, by their connected succession, represent the individual; in the other case, it is a cell occurring within the cycle itself, and merely forming the beginning of a new segment of it. In the flowering plants it is the germ cell, formed after the entire accomplishment of the metamorphosis in the uppermost central cell of the seed sprout, (the embryo sac of the ovule,) which receives the impregnation by means of the advance of the pollen tube up to the embryo sac,—with it the entire development recommences.

In the mosses and ferns it is the central cell of the Archegonium, (a sproutlet which may be compared with the nucleus of the ovule,) which is impregnated in a manner not yet accurately known, through the spermatozoids formed in the antheridæa. The development of this, however, is not a recommencement of the entire cycle, but only an advance towards a new and higher stage of the metamorphosis which, unfolding in connection with the pre-existing, preparatory structure, carries over the individual life only after more or less complex, intermediate stages of formation, to the production of the true reproductive cells (spores), with which, and without further impregnation, the new cycle of development commences.

The point of transition marked by impregnation is, again, different in the Ferns and mosses. In the

mosses the transition from the algoid pro-thallium to the leaf forming stem, takes place before impregnation, which causes only the development of the spore forming capsule: in the Ferns, on the contrary, the preparatory structure does not go beyond the leafless pro-thallium, and the advance towards the leaf-forming stem, depends on the impregnation.

Hybrids were known amongst Ferns before the discovery of the impregnation organs. The hybrid must develop, as it were, grafted on the mother plant. Not until the second generation, that developed from the spores of the hybrid, can the preparatory structure assume the hybrid nature. From the occurrence of numerous archegonia on the same moss plant, we might except to find when the hybrid impregnation only affected particular of them, while others were fertilized by the proper species, two kinds of fruit perfected on the same stock, normal and hybrid fruits."

Soil of Henry Co., Ills.—*A Correspondent* writes: "Those folks who write for the *Monthly*, about preparing for grapes with one or two hundred loads of manure to the acre, should come here. I have, for 6 or 8 years, raised and sold three or four hundred dollars worth of bushes from my acre It has not been manured,—200 loads stirred in would ruin it. Most things grow too rank to flower or fruit well, or winter well. Farmers begin to haul manure out of town, but some is piled on the commons and burnt.

The same proportion of wood ashes that I used in Ohio will destroy corn or cabbage here on my lot. This soil has potash enough, and is loose enough. I have one good underdrain; parts of my lot I have trenched 3 feet deep: ploughed 7 inches, is as good as any.

A single rose, Wild Moss, grows here 12 or 18 inches high. I have traced their roots *seven* feet deep: *there* is a stopping place, but it is a place full of roots in abundance,—of grapes, roses, currants, onions, lilies, tulips, daffodils. If any doubt, I'll find the spade and a place to dig."

The "London Gardener's Monthly."—The *Ohio Farmer* credits an article to the above source. There is no such magazine. We make the correction, lest we should be supposed by some to have copied our title from some foreign work, whilst there is nothing we hate so much as the bare suspicion that we wish to sail into popular appreciation under any other flag but our own. We found wants unsupplied which no foreign journal could fill, and we decided on an original work, with an original name, for an original want. We know it is popular with publishers to "American" a foreign title.

The writer of this, many years ago, wrote a little book, which it was insisted should be called "an American" handbook; and we have "American" journals of Sciences, "American" journals of Horticulture, and "American" names of foreign works innumerable, just as if foreigners had absorbed every idea, and there was nothing left for Americans but a meek following of the thoughts of others.

But it is a mistake. There is knowledge and talent in America sufficient to satisfy American wants, without being told at every turn that it is "American." To us it seems like the boy who sketched an animal on a slate, and then had to write underneath "this is the picture of a horse."

We at any rate thought we had originality enough to at least find a distinctive title to our work; and we really do not feel at all complimented that our Ohio friend should, even by an unintentional error, as no doubt it was, identify us with any such "operation."

Books, Catalogues, &c.

The American Fruit Culturist.—By J. J. Thomas, New York: William Wood & Co.

To one whose combativeness is largely developed, and who loves to criticize and "pull to pieces," new garden books, the past few years have afforded a a rich treat. Men who scarcely know a cart wheel from a plow handle, honor us with their views on agriculture; and others after a hasty glance at Prince's Pomological Manual, the proceedings of the American Pomological Society, or a few leaves torn from Shirley Hibberd's works, get up a "new book," and expect to be classed as amongst the "Authors of the day." It is always painful to us to criticize,—our disposition is to seek rather that which we can praise than something to condemn. We would rather have the honor of being the discover of one new idea that would add to human happiness, than earn the credit of having exposed a thousand faults or failings in other folks. Yet, painful as it has been to us, we have not shrunk from our plain duty of exposing the counterfeits that have so freely been placed in circulation, and we are pleased to see a healthy public sentiment arising which will we are sure produce the much needed reform.

But as we have scarcely got over our horror of "new

books," and notwithstanding the well earned reputation of the Author of this, we did not take it up with that pleasure, which on a thorough examination it really afforded us; for even the surliest literary cur, after a keen search for something to snap at, would find very little in it to disturb the kindliest feeling for both the book and its author. There are, to be sure, a few slight errors, such as Pitmaston's Nectarine for Pitmaston Nectarine, and other such trifles; but the only wonder is, that one so affected in his sight as Mr. Thomas is, and who could only correct the proof by having it read to him, should be able to produce a specimen of typographical execution so nearly perfect.

To say that Mr. Thomas' book is entirely original is alone high praise when so many works are either other men's brains palmed off as the "author's own" or at best do not rise above the dignity of compilation; but for all an original work may be inferio to a well adapted hash from other books. Not of this class is this before us, but a treatise on American fruits, founded on American practice, by the master hand who knows of what he writes, and how to tell of what he knows.

It is divided into two parts, the theory and practice of fruit culture, and the varieties of fruits. In the first part nothing that would aid the cultivator is overlooked, profits are fairly discussed, the structure and mode of growth of plants, producing new varieties, soils, manure, &c., for preparing orchards, cultivating and renovating, pruning, tools, thinning, gathering, preserving, nursery treatment, packing, &c., are amongst the hundreds of topics enlarged on in a general way.

When he comes to varieties of fruit, he besides enters particularly into the treatment of each kind of fruit, and in the classification of varieties endeavors to produce some order out of that chaos of fruits which we have so frequently deplored, and urged the attention of Pomological authors to. To some extent he has succeeded, but his charactersare too artificial, and will, no doubt, be replaced by some other system in time. Under his arrangement varieties of fruits are brought together that bear no relation to one another. Such Apples as Porter, Maiden's Blush, Siberian Crab, Hawley and Fall Orange, get together in one of his classes,—varieties which are not at all suggestive of a homogeneous type. Porter and Lowell together in this class comes nearer to the idea we would have expressed. Mr. Thomas divides his classes of apples into round or sweet, or striped, but what we hope to see is a classification which shall rest in the average resemblances of a whole set. We will close our notice by observing that if Mr. Thomas' book is to be a type of the new horticultural works to be issued from the press, we welcome them in advance. The more of them the greater the credit to the country, and the benefit of the horticultural cause.

Memoir of Marshall P. Wilder. By John H. Sheppard, A. M. Published by the New England Historical and Genealogical Society.

This is a pamphlet of 50 pages, illustrated with a beautiful engraving of Mr. Wilder, which his friends will recognize as an excellent likeness. Mr. Wilder has spent a long life in furthering the interest of horticulture, and it must be a great satisfaction to him in his declining years to find his efforts so generally acknowledged and highly appreciated. He is by this time in Europe, but will return in time to preside at the Pomological Society at St. Louis.

Transactions of the New York State Agricultural Society, for the year 1865.—From B. P. Johnson, Secretary.

This is a very interesting volume, especially to those interested in the cultivation of the grape in in New York State. It is also illustrated with colored plates of the principal ornamental hardy trees and shrubs.

Record of Horticulture for 1866. Edited by A. S. Fuller. Published by Geo. E. & F. W. Woodward, at the Office of the Horticulturist.

We are glad to see the demand which exists for these annuals. There is an immense amount of interesting facts floating about over transient literature, which ought not to be forgotten, and which it is the privilege of these annuals to record and save for us. This one gives the books on Horticulture of the past year, the new fruits, trees, shrubs and herbaceous plants, besides much other matter that will interest Horticulturists.

Dr. Mohrs' Book on the Grape.—So many inquiries have been made in reference to an English translation of this German work, that our readers will be pleased to know Judd & Co., are going to publish an English edition.

Dr. Warder's book on apples is about to be issued from the press.

New and Rare Plants.

THE *Botanical Magazine* figures the following :—

ANGRÆCUM CITRATUM.—Orchidaceæ. A pretty little stove epiphyte, consisting of a few oblong, lanceolate leaves, forming a flattened tuft, and a slender pendulous radical scape, bearing a many-flowered raceme 4 or 5 inches long, on which the small cream-colored flowers all facing one way, are set in two rows, one on each side the rachis; they have a spur twice as long as the lip. Native of Madagascar. Flowered by Messrs. Veitch & Sons.

BARLERIA GIBSONI.—Acanthaceæ. A glabrous stove shrub, of branched habit, with neat ovate or oblong lanceolate leaves, sub-terminal flowers of rather large size, nearly regular outline, and of a pale purple color. It is described as being useful for winter flowering. Native of India. Flowered at Kew.

CLAVIJA FULGENS.—Myrsinaceæ. A beautiful stove shrub, of erect habit, the single stem bearing a crown of obcuneately spathulate leaves, a foot or more in length ; from their axils, and growing so as to be hidden by them, issue short racemes of very handsome deep orange-red flowers. Supposed to be of Peruvian origin. Flowered at Kew.

CURCUMA AUSTRALASICA.—Zingiberaceæ. A rather ornamental stove herb, closely allied to the common Turmeric. It has oblong lanceolate leaves, and many-flowered spikes of yellow blossoms, the lowers bracts subtending which are shorter, green, and recurved, and the upper ones longer, more acute, and rose-colored, forming a pretty crown to the inflorescence. Native of Cape York, Northeast Australia. Flowered by Messrs. Veitch & Sons.

HELIANTHEMUM OCYMOIDES.—Cistaceæ. A beautiful hardy sub-shrub of dwarf habit, with linear oblong leaves, and bright yellow flowers with a dark eye. Native of Spain and Portugal. Flowered at Kew. "The beautiful genus to which this belongs," observes Dr. Hooker, "was once a favorite in cultivation, but has of late given way before the rage for bedding-out plants, which now monopolize the once varied borders of English gardens. No less than 70 species of Helianthemun, besides varieties, are figured in Sweet's valuable book on the cultivated plants of the order, published in 1830, and, of these a great number are now no longer to be found in England. It is to be believed that the time will yet come when the taste for really beautiful and interesting plants will reign again, and replace the present passion for a blaze of gaudy colors along our garden walks."

IMPATIENS LATIFOLIA.—Balsaminaceæ. A free-flowering and free-growing stove plant, of erect branched habit, 2 to 4 feet high, with fleshy stems, ovate lanceolate serrated leaves, and large flat pale purple flowers, somewhat resembling those of I. platypetala. Native of India and Ceylon. Flowered at Kew.

LAMPROCOCCUS WEILBACHII.—Bromeliaceæ.—Also called L. Laurentianus and Æchmea Weilbachii. It is pseud-epiphytal stove herb, with ligulate leaves, and an erect scape bearing crimson spathes and purple flowers, of not a very showy character. Native of Brazil. Flowered in the Copenhagen Garden.

MESOSPINIDIUM SANGUINEUM.—Orchidaceæ. A pretty cool stove epiphyte, with oval compressed pseudobulbs, cuneate ligulate leaves, and secund pendulous racemes, branched at the base, bearing pretty moderate-sized, waxy, warm rosy-tinted flowers. Native of the Peruvian and Quitensian Andes. Introduced from Ecuador, and flowered by Messrs. Veitch.

RHAPHIA TÆDIGERA.—Palmeæ. A graceful Palm, with a tall erect cylindrical stem, and a crown of stout arching pinnate fronds, having many pinneæ, the fructification consisting of large cluster-shaped spadices hanging from between the bases of the fronds. Native of Brazil. Grown by M. A. Verschaffe't.

TAPEINOTES CAROLINÆ.—Gesneraceæ. A pretty succulent-stemmed stove plant, with oblong lanceolate serrated leaves, of a shining bluish-green above and bright red-purple beneath; the flowers are axillary Gloxinia-like, white, with the tube much inflated and curved upwards. Native of Brazil. Flowerd at Kew.

VRIESIA BRACHYSTACHYS.—Bromeliaceæ. A stove perennial, with ligulate green leaves, and a short distichous spike of yellow flowers issuing from spreading carinate bracts, which are red at the base and tipped with green. The scape also is colored red. Native country not stated. Flowered in the St. Petersburg Botanic Garden.

DISEMMA COCCINEA is a plant from New Holland, nearly allied to Passiflora, and which has recently bloomed in some American collections. The flowers are scarlet, not so deep a color as Passiflora Kermesina but about the same size. It flowers, in a cool greenhouse, in March, April and May.

Domestic Intelligence.

About the Grape-vine.—The following from a Philadelphia Agricultural journal, the *Farm and Fireside*, is to our mind worthy of careful attention by progressive Horticulturists, and we extract it entire.

"A neglected vine, prostrate among the grass, slightly supported by branches trimmed from an adjoining apple tree, was found in September to have some fine, large bunches of grapes of a delicious flavor. Personally interested in the matter, I considered this grape too valuable to suffer to remain in such a condition. Late in the season, with the aid of an experienced vine dresser, I had the vine carefully taken up and transplanted to a good location near the dwelling, both for shade and convenience. Here it grew profusely, making rather more new wood than to me seemed necessary; but as a grateful shade over the cistern, I suffered it to spread. It flowered profusely, but not a solitary fruit was developed that season, nor ever after, to my knowledge.

Some of my knowing friends, to whom I showed the vine in full bloom, declared it be a male or staminate plant. How came it so? Previous to transplanting it yielded abundant fruit for some years, as the former owner of the premises declared to me, and my own observation and enjoyment of its fruit confirmed. Stating this circumstance to Mr. Abel Keise, of Manor township, Lancaster Co., Pa., he informed me that he experienced precisely the same result, having found a vine in his fields, supposed to have been carried out among chip-dirt, bearing a most delicious grape. This he carefully took up in the Fall and transplanted it near his dwelling, where it flourished, flowered, but remained barren, a male vine ever since. Why?

I have a vine now, raised from a raisin seed, that flowers annually, but never bears any fruit. The parent must certainly have borne fruit, or else there could be no seed; but it is called a flowering vine. As a counter fact, Dr. Wm. B. Fahnestock, late of Lancaster, Pa., assures me that he had what was called a male grape vine in his yard for many years. One summer he had emptied the blood drawn from his patients (bleeding was somewhat in vogue yet), at the roots of the vine; to his suprise, the vine bore fine grapes after that, and he inferred that bullock's blood, applied to the roots of barren vines, would induce them to bear. It might be worth trying. I give it as I received it. This latter case (since I cannot doubt the veracity of my informant) perplexes me as to the theory I felt inclined to adopt from subsequent microsopic investigations, respecting the wood of bearing and non-bearing vines and branches.

The grape vine is somewhat peculiar, as it yield, often on the same vine perfect flowers, that is, having both pistil and stamens on the same flower (hermaphrodite); others of the flowers are staminate only; others again, pistillate only, hence termed polygamous, and when only of one kind, either male or female organs, they are termed diœcious. This diversity, I am inclined to believe, is caused by a suppression of one or the other of its organs, by local or accidental circumstances; and that its normal character is that of a hermaphrodite plant. Under this impression, I collected branches bearing various kinds of flowers, cut thin slices from them, and subjected each kind to a close inspection under the microscope, to see whether I could detect any change of condition in the tissues or woody fibres. I came to the conclusion that those branches which bore perfect flowers had both a healthy pith and medullary sheath. The staminate only showed a defective pith or central axis, discolored or rather yellowish. In those that were pistillate only, the medullary sheath seemed discolored; and branches that bear no flower stalk may be defective both in the pith and medullary sheath, and such I am inclined to believe is the case.

I will not attempt a discourse on structural botany and the science respecting the floral organs modified or metamorphosed, or the alteration of the floral organs, as comporting with the science of Phyllotaxis, when the leaves are opposite or verticillated and alternate, on the assumption that the arrangement of the leaves show a spiral formation or discursating in verticals, &c. Nevertheless, it may be interesting to some of your readers to know some of the expressions and opinions of men of high repute, as regards the pith of plants and its functions. The medullary sheath, surrounding the pith, has rays which seem to serve to keep up the communication between the pith and the bark, which, single or combined, may bear a certain relation to the science of Phyllotaxis, as well as to the suppression or change in the floral organs, as intimated.

The pith seems only a modification of the original pulp, and the same hypothesis that accounts for the formation of the one, will apply to the other, but the pith and pulp, or parenchyma, are ultimately converted into organs essentially distinct from one another, though phytologists have been much puzzled to assign to each its respective functions. A vulgar error prevailed at one time, that the function

of the pith was that of generating the stone of fruit, and that a tree deprived of its pith would produce fruit without a stone. This goes quite too far, but nevertheless has a significance that is worthy of further investigation. The pith may be considered analogous to the heart and brain of animals, as advocated by Malpighi, who believed it to be a kind of viscera in which the sap was elaborated for the nourishment of the plant, and for the protrusion of future buds. Magnol thought that it produced the flower and fruit, but not the wood. Du Hamel regarded it merely as an extension of the pulp or cellular tissue, without being destined to form any important function in the process of vegetation. Linnæus was of opinion that it produced even the wood, regarding it not only as the source of vegetable nourishment, but as being also to the vegetable what the brain and spinal matter are to animals, the source and seat of life. Thus eminent physiologists disagree. Mr. Lindsay of Jamaica, suggested a new opinion on the subject, regarding it as the seat of the irritability of the leaves of the Mimosa; and Sir J. E. Smith says he can see nothing to invalidate the arguments on which this opinion is founded. Plenck and Knight regard it as destined by nature to be a reservoir of moisture to supply the leaves when exhausted by excess of perspiration.

I refer briefly to these remarks to show that the peculiar function of the pith is not satisfactorily ascertained. It may safely be affirmed that the pith is essential to vegetation in all its stages, and may be considered to be an organ of elaboration, both as respects the sap and fructification, and that the medullary sheath, surrounding the pith as the stamens do the germ, is intimately connected with the functions of the pith, as it is with that of the bark and phyllotaxis.

If my observations will prove to be universally correct, that those branches of the vine that bear perfect flowers will show a healthy condition of both the medullary sheath and pith; and those having stamens only, to have a healthy sheath and defective or unhealthy pith; or when pistillate only, then, in that cases, the central axis or growth of the pith proves healthy and the medullary sheath defective. This proving so, then an intimate relation is necessarily established. But as my article is already longer than intended, I shall close; my object begin rather to call the attention of grape growers to the subject of male and female grape vines, than to give a dissertation on the physiology of the grape vine. My object is to collect facts, from which legitimate deductions may be drawn, and hope to hear from others on the subject.—J. Stauffer, *Lancaster, Pa.*

A Public Swindle.—The readers of agricultural papers may have noticed during the last few months, an advertisement purporting to come from August Schmidt, of London Madison Co., O., in the nursery and Osage orange seed line of business. This Schmidt is a tool of one A. Bornemann, well known to the press as a sneak advertiser, who being too well known to impose upon them under his own name, put forth that of his brother-in-law, who seems to have been more of a fool than a knave. Bornemann received a host of letters with money enclosed, at the London Post Office, and left that place a month ago. All persons who have sent money to this August Schmidt, may as well conclude that it has gone up the spout—*O. Farmer.*

Premium for Grapes—*Longworth's Winehouse*, Cincinnati, Feb'y 23, 1867.—To the wine-growers of the United States, through the American Wine-growers Association of Ohio:—

Feeling deeply interested in the improvement of our native grapes and wines, we offer the following premiums: A silver pitcher, two goblets and waiter, to cost not less than $350, as the first premium; a silver cup, to cost not less than $100, as a second premium; and a silver cup, to cost not less than $50, as the third premium.

The first premium to be given to the best general wine grape of our whole country. The second premium to be given to the best variety of grapes for wine purposes in the State of Ohio, provided it is not awarded to the grape that receives the first premium, in which case it will be given to the second best wine grape in the country. The third premium to be given to the best table grape, for general purposes in the country.

Our requirements are, that the plants, when generally cultivated, shall be perfectly healthy, hardy and productive, and the fruit shall produce wine of a good quality, as to flavor, strength and quantity. The fruit shall be shown at the coming fall consolidated exhibition of the American Wine Growers' Association of Ohio and Cincinnati Horticultural Society, in quantities of ten pounds or more, with samples of the wines from the competitors for the first two premiums, if practicable.

The Committee to be composed of the Hon. Marshall P. Wilder, of Boston; Solon Robinson, Esq., of New York; a member to be designated by the Lake Shore Grape-growers' Association, at their next meeting; a member to be appointed by the American Wine-growers' Association of Ohio, and Dr. C. W. Spalding, of Missouri.

At the meeting of the Committee to award pre-

miums, in case they are not all present, the members present to fill the vacancies. The award of the Committee to be final.

LONGWORTH WINE-HOUSE.

FIRST APPEARANCE OF MILDEW.—Dr. C. L. May, of Warsaw, Ill., happened in at one of the New York Farmer Club meeting invited to speak, said:

"He said that the people of Hancock county, Illinois, are largely interested in grape culture, having about two million vines under cultivation. The old vineyards are mostly all Catawba. This variety of grape has never failed to ripen its fruit perfectly. Though some of the vineyards have been planted from ten to fifteen years, yet rot never made its appearance until the season of 1865, which was usually wet. From the 15th of June until August 10th, rain fell almost continuously. The loss to the crop even in that unfavorable season did not amount to more than one-third. The Delaware and Iona, though planted beside the Catawba, whose fruit rotted badly, showed neither rot nor mildew. Concord berries dropped from the vines badly; those remaining cracked so as to make them worthless for market."—*Iowa Homestead.*

CAUSE OF PEAR BLIGHT.—The *Virginia Farmer* says: "The one which is advocated by Mr. Meehan of the *Gardeners' Monthly*, viz: that the disease is traceable to the absorption of the spores of a fungus by the tree, which being disseminated through the sap, and under peculiar circumstances, germinating, feed upon the tree and destroy its vitality, while more probable we think than the others, is also open to objection. For, if this be the cause, why are not other trees besides the pear affected? There is certainly no reason why the pear should absorb these fungus spores more than the peach, cherry or apple."

[The apple and cherry do absorb fungoid spores, which take the form of knots, excrescences, and other appearances. Each species favors a peculiar form of fungi. One might ask, if the "oidium Tuckerii,"—a form of grape vine mildew,—is really a fungus; why does it not grow on hop vines, or any other vines? We do not know what species of fungi the Pear blight is caused by, (if at all); but, as our contemporary says, so far it seems probable; and we await further developments before asserting it as a proven fact.—ED. *G. M.*]

BOTANY IN MASSACHUSETTS.—Three gentlemen of Boston have promised $20,000 towards the establishment of a botanical garden in connection with the Massachusetts Agricultural College.

ERIE GRAPE CROP.—The Sandusky *Register* says that the Lake Erie Grape crop, the past year, was one-fifth the average. About two hundred tons of grapes were shipped from Sandusky during the season. New York, Boston and Chicago took the greater part. The average price was 10½ cents a pound. The quantity of wine light. The wine grapes brought from 6 to 8 cents,—a little less than the previous year.

CALIFORNIA PEARS.—A San Francisco paper, speaking of Pears, says:

"This fruit grows in this State almost without care or cultivation. The season for the pear here extends through the entire year—commencing in the latter part of April with a small pear, that comes from Los Angeles, called the San Juan Pear. This pear has a good color, but is dry and almost tasteless. It is soon followed by the Madeleine; then comes the Dearborn Seedling, which is the first really good variety that comes into market. The latter part of June and the first of July the market is supplied with several excellent varieties, among them the Bartlett. August and September we have the Seckel, Fall Butter, Flemish Beauty, and fifty others. October and November, the Winter Nelis, Duchesse, &c. The Bartlett, raised in the "foot hills," continue in market up to this time, which makes the season of this one variety five months. In December and January there are a few winter varieties left—the Pound Pear, which is used only for cooking, and the Easter Beurre, a fine large table pear. After this time we are almost entirely indebted to D. T. ADAMS, of San Jose, for table pears. He has learned the art of keeping the Easter Buerre the winter and spring, and in all its perfection.

Last year, in April, his Easter Beurres were as juicy and high flavored as in the Fall, and from present appearances will last this year into May, if not June. This year he has sent into market another pear, that keeps as well as the Beurre Easter. It is the Doyenne de Alencon. It resembles the Winter Nelis both in color and flavor. The secret of Mr. ADAMS' success in keeping his pears so long is known only to himself."

Honey Locust for Hedges in Canada.—I have made up my mind that the Honey or Hedge Locust is just the thing for this climate. The Osage Orange will not stand our severe winters, and it is a slow grower. The Buckthorn makes an efficient fence, but from my experience, it will take from seven to ten years to grow a fence, and the mice are very fond of it, while the locust is very hardy, and a thrifty grower. It grows with a tap root, and never sends up suckers.

I plough eight furrows together, so that it will give room to work with a horse, and set the plants with a dibble, ten inches apart, and mulch with short manure, which is all the manuring they will require. Cultivate three or four times through the summer, and keep the weeds down with the hoe. The second year they should be cut three inches from the ground, which will cause them to send up two, three or four shoots each; after which it is only necessary to keep them of a uniform size. With strong two-year plants, and good cultivation, a hedge can be grown in five years that will turn any ordinary animal.—*Cor. of Canada Farmer.*

Foreign Intelligence.

The late Philip Franz Von Siebold.—[We have been favored by Professor Oudemanns, of Amsterdam, with the following notice of the life and labors of the Chevalier Von Siebold, in which many of our readers, we are sure, will feel interested. Eds. *London Gardener's Chronicle.*]

The Chevalier Philip Franz von Siebold died at Munich on the 18th of October last. This great scholar, who had made his name world-famous, and shed thereby a lustre on both his native and his adopted country, was born at Wurzburg on the 17th February, 1796, of a family which has given several distinguished members to the medical and other kindred professions; in fact, his daughter (who has supplied the ground-work of this sketch) enjoys at this day the reputation of being a most able practitioner in Japan in the ailments of women.

Von Siebold received a first-class education at Wurzburg, and obtained the degree of Doctor in 1820. Two years later he followed the example of so many of his countrymen, and went to Java as medical officer in the Netherlands service; and when that Government despatched a scientific expedition to Japan, Von Siebold was attached thereto as medical officer and naturalist.

Arrived there, he was compelled, like all foreigners, to confine his explorations to the immediate vicinity of "Desima." He soon, however, acquired greater freedom, mainly in consequence of the repute attaching to his name as a man of science. The Japanese naturalists, and even the physicians of the Royal Court, flocked to hear his teachings, and they in their turn gave him the best and most reliable information respecting the political, historical and geological feautures of a country then comparatively unknown.

In 1826 Von Siebold had the good fortune to accompany the Dutch Ambassador to the Court of Jeddo. Incited by his love for scientific inquiry, his pupils visited almost every province of the country, and the result of their investigations were carefully collected and digested by their master. In 1828, however, while he on the point of returning to Java, his life was endangered by the excessive zeal of one of his friends, the Imperial astronomer and librarian. This gentleman had furnished him with a hitherto unpublished map of the empire, and for this cause Von Seibold, who risked his own life to save that of his friend, was thrown into prison at the moment that he was embarking for Europe, whither his companions had already preceded him. He returned home however on the 7th July, 1830, and although holding the rank of colonel in the general staff, he quitted the Netherlands service, and employed himself in the arrangement and classification of the rich store of scientific curiosities, which he had recorded and collected in Japan, while his wonderful collection of ethnographic objects was purchased by the Government. The latter has been beautifully arranged in the State Ethnographic Museum at Leyden, and is now open to the inspection of the public.

We proceed to enumerate the series of interesting works which have been edited by Von Siebold alone, or in conjunction with other learned Professors.

In addition to the treatises included in the "Transactions of the Batavian Society of Arts," we find Nippon Archiv, zur Beschreibung von Japan, ect., Leiden, 1832—1851. This work, which is not yet entirely completed, made at once a great sensation in the learned world, from the wonderful wealth of scientific matter contained in it. This was immediately followed by his "Fauna Japonica," Lugd. Bat. 1833—1851, in folio, in which he was assisted by C. J. Temminck and H. Schlegel, and also by his "Flora Japonica," illustrated by Zuccarinii, and which have been published in the "Transactions of the Second Class of the Royal Academy of Sciences," iii. or iv., of Munich. Furthermore a collection of works, lithographed by the Chinese artist Ko Tsching Dscheng, at Leyden, chiefly relating to the literature of Japan.

About 1854 he fixed his residence on the banks

of the Rhine, in the neighborhood of Bonn. But when European nations became alive to the benefits likely to accrue from the extended commerce with Japan, he was encouraged to take up his pen, to serve as pioneer and guide to the fleets of commerce. This he did by means of a work intituled "Urkundliche Darstellung des Bestrebungen von Niederland und Russland zur Eroffnung Japan's fur die Schiffahrt und den Seehandel aller Nationen" (Bonn, 1854, with map), and this work was the same year published in Dutch at Bommel.

Soon after he paid a second visit to Japan. So changed, however, was the condition affairs that he very naturally failed to inspire the same romantic interest amongst the people that he did on his first visit. He returned to Europe with a new collection of objects bearing upon the physical and social peculiarities of Japan. On his arrival in Holland, having attempted in vain to induce the Government to annex the second to his first collection, he determined to travel and offer it to some other musuem, whether at Wurzburg or elsewhere. At last he succeeded; the King of Bavaria bought the whole collection for the Museum at Munich, and this purchase is now awaiting the confirmation of the Bavarian Chambers. He was engaged in classifying and arranging this Museum when death overtook him from poisoning of the blood (fever?).

In the previous year numerous articles from his pen on the subject of Japan were published in the Augsburg "Allgemeine Zeitung."

About the year 1850 Von Siebold made great efforts to improve the science of horticulture in Europe, and to import new plants, especially from Asia. His designs also for the laying out of gardens serve to show that mere science was not the sole incentive to exertion on the part of the Professor. It is probably however that this enterprise met with no great success; indeed everything that was not exclusively identified with science, was more or less a failure with him. One of the greatest services rendered by Von Seibold to horticulture was the laying-out of his nursey ground in the immediate vicinity of Leyden—at Leiderdorp—for the purpose of propagating and bringing into vogue plants and shrubs as they were imported direct from their native soil. This garden, better known as the "Jardin d' Acclimatation du Japon et de la Chine," contained about 5 acres of ground, and was laid out in the year 1843. Since that date the following plants and trees have been introduced, either by Von Siebold himself or by his intervention:—

25 kinds of Maple (Acer), of which only three were known in commerce.
4 kinds of Aralia.
20 kinds of Aucuba (amongst them some with male blossoms).
4 kinds of Bambusa.
4 kinds of Cerasus (not yet in commerce).
4 kinds of Citrus (not yet in commerce).
12 kinds of Clematis.
6 kinds of Deutzia.
12 kinds of Diervilla.
12 kinds of Weigela.
15 kinds of Euonymus.
12 kinds of Hydrangea (of which six are not yet known in commerce.
6 kinds of Malus.
6 kinds of Osmanthus.
4 kinds of Persica.
8 kinds of Pinus.
12 kinds of Quercus (evergreen).
2 kinds of Spiræa.
6 kinds of Viburnum.
4 kinds of Glycine sinensis.

Besides the above, there are in Von Siebold's garden select specimens of Japanese or Chinese Conifers, Pines, Lilies, Camellias, and a host of variegated plants. In regard to many of these, we refer to the "Catalogue raisonne et Prix Courant des Plantes et Graines du Japon et de la Chine" for the year 1863, now before us.

We are in a position to state that the Acclimatisation Garden of Von Siebold will be preserved, and the cultivation of it continued for the original purpose, and objects of its founder.—*Gardeners' Chronicle.*

Double-flowering Zonale Geraniums.—The varieties of Pelargoniums of the inquinans and zonal sections—we beg pardon of those of our friends who *will* think the word Geranium so much better for these races, though it isn't true—these Pelargoniums, we say, possess a new source of interest, now that it has been found that they will yield us good double flowers. So it is argued by M. Emile Chaté in a recent number of *L' Horticulteur Francais*, from which we glean some of the annexed particulars.

The first Pelargoniums with perfectly double flowers were raised, he observes, in 1859, by M. Martial de Chanflourd, of Clermont Ferrand, a distinguished amateur, after whom it is named, and who had already, in 1855, obtained the variety known under the the name of Auguste Ferrier. This latter variety had remained for nearly ten years in the garden in Clermont without its merit being appreciated. In Auguste Ferrier, however, the doubling is not so fully developed as in Martial de Chanflourd, but the coloring is more brilliant; and as it produces good seeds, it has become the parent of numerous varieties, of which Martial de Chanflourd is one. The Triomphe de Gergovia, supposed to be a new acquisition, proved to be nothing more than Auguste Ferrier, with the name altered.

Since the appearance of the foregoing sorts, continues M. Chaté, M. Louise Van Houtte has introduced a new kind (Ranunculiflora plenissima), similar at first sight to Martial de Chanflourd, but presenting appreciable differences—the flowers being more abundant, the color paler, and the shape more perfect. M. Lemoine has also obtained a new double variety, Gloire de Nancy, which, in M. Chaté's opinion, surpasses all that have preceded it. In this, which was the result of crossing Martial de Chanflourd with Beaute du Suresne, the flowers are full and well formed, though not more abundant than in other sorts.

From the variety Auguste Ferrier, which flowers luxuriantly, and yields good seeds, M. Chaté has obtained a plant with flowers of a flesh-pink color, in which, though the doubling is not considerable, it is expected that the seeds will be numerous, and that their produce will yield novel and interesting results. An impulse has been given, and it only remains that it should be energetically followed up. This done, we shall no doubt in a few years possess, Pelargoniums with double flowers, the plants as floriferous, and the colors as varied as in single varieties. We may add that Gloire de Nancy was shown in fine condition at the Royal Botanic Society's show last Wednesday, and that its head of flowers, bear much resemblances to those of the double scarlet Lychnis.—*Gardeners' Chronicle.*

African Vegetation.—M. Du Chaillu, of gorilla fame, has just published a "*Journey to Ashango Land.*" The *Gardeners' Chronicle*, in speaking of it, says:—

Of more interest to horticulturists are the details given concerning the climate of this district. Western Equatorial Africa, so far as M. Du Chaillu describes it, appears to be a vast forest, interspersed here and there with prairies, and with ranges of high ground in the interior. Such a district would naturally be not only hot, but wet; indeed, the amount of rain seems to be enormous; while in some parts the year may be divided into two seasons—a rainy season extending from September till May, a dry season lasting from June to August—in others it may be almost said that there is a continuous rainy season all the year round. The temperature M. Du Chaillu considers as not so high as that of other tropical regions, probably from the humidity and cloudiness of the atmosphere. The lowest degree of cold noted by the author was 64° F.; the maximum temperature 92° F.; but at the same time that the temperature of the air was registered at 92° F., that of the sun when unclouded amounted to 146°, some 40° higher than has been noticed in this country.

M. Du Chaillu more than once remarks upon the effects of a clouded sky in lowering the thermometer, and the similar abatement in the temperature in the forests as compared with that of the open country. While in a village the thermometer registered 92° F., the temperature in the forest at the same time, was 10° less. "The great humidity of these dense shades," says M. Du Chaillu, "causes an agreeable coolness, and I have noticed that when rain has fallen during the night, there often remains some moisture on the surface of the leaves at 2 P M., showing how slow, comparatively speaking, is the evaporation in these shady places."

M. Du Chaillu does not give us many details concerning the vegetation of these regions, which we the more regret, as the researches af Mann, a little to the northward of the district traversed by Du Chaillu, have been exceedingly productive of rare and interesting forms of vegetation. Some of the Sterculiaceous plants collected by Mann would form most desirable additions to the list of stove foliage plants, from the grandeur of their leaves, which are often of silvery whiteness on the under surface.

Orchids, says M. Du Chaillu, abound near the sea; no doubt among them are many novelties and beauties worthy the search of an experienced collector. One of these latter has been recently figured in the "Botanical Magazine," under the name of Angræcum Chailluanum.

Origin of Species.—You have all read of uncivilized races of mankind that regard every month's moon as a new creation of their gods, who, they say, eat the old moons, not for their sustenance, but for their glory, and to prove to mortals that they can make new ones; and they regard your denial that their gods do monthly make a new moon as equivalent to denying that they could do so if they would.

It is not so long since it was held by most scientific men (and is so by some still) that species of plants and animals were, like the savages' moons, created in as many spots as we meet them in, and in as great numbers as they were found at the times and places of their discovery. To deny that species were thus created was, in the opinion of many persons, equivalent to denying that they could have been so created.

And I have twice been present at the annual gatherings of tribes, in such a state of advancement as this, but after they had come into contact with the missionaries of the most enlightened nations of man-

kind. These missionaries attempted to teach them, amongst other matters, the true theory of the moon's motions, and at the first of the gatherings the subject was discussed by them. The presiding Sachem shook his head and his spear. The priests first attacked the new doctrine, and with fury; their temples were ornamented with symbols of the old creed, and their religious chants and rites were worded and arranged in accordance with it. The medicine men, however, being divided among themselves (as medicine men are apt to be in all countries), some of them sided with the missionaries—many from spite to the priests, but a few, I could see, from conviction—and putting my trust in the latter, I never doubted what the upshot would be.

Upwards of six years elapsed before I again was present at a similar gathering of their tribe; and I then found the presiding Sachem treating the missionaries' theory of the moon's motions as an accepted fact, and the people applauding the new creed.

Do you ask what tribes these were, and where their annual gatherings took place and when? I will tell you. The first was in 1860, when the Derivative doctrine of species was first brought before the bar of a scientific assembly, and that the British Association at Oxford; and I need not tell those who heard *our* presiding Sachem's address last Wednesday evening that the last was at Nottingham.—J. D. Hooker, in *Gard. Chron.*

Oriental Mysteries.—These are sold in envelopes or packets at 1*s.* per packet, each of which contains 25 "mysteries." In the state in which they are purchased, they are of no apparent shape or make. Some appear like peices of a common lucifer-match; other like little dirty, irregular chips of a soft wood; and others, if I may so express myself, like nothing at all. In this state they appear quite useless, and certainly are not worth 1*s.*, but immediately upon dropping one of them into a cup or saucer of hot water, it changes into a star, a fish, a flower, or some other tangible form. The change is instantaneously effected by coming in contact with the water, and the worthless looking splinter of dried wood expands to many times its original size, and what is more, the specimens, when so enlarged, are, many of them highly colored, representing, more or less accurately, not only the form but the color of the objects for which they are intended. As might be supposed, the quickness of the expansion, and the power of increasing to so many times the orginal bulk, has caused many inquiries to be made as to what the material could be of which these "mysteries" are made, and whether that material, whatever it may be, is treated chemically. I was fortunate enough to have put into my hands a "mystery" of large size, containing more solid material than those sold in the London shops, and on close examination I was enabled to determine the nature of the substance, which is a simple vegetable tissue without any preparation whatever.

The plant yielding it is a common one in the East, and is known as the Shola (Æschynomene aspera), belonging to the Leguminosæ or Pea family. It is a marsh plant, and grows in abundance in the lakes and jheels of Bengal, as well as in other parts of India. If the objects are veritably of Japanese manufacture, it would seem that the stems of the Shola must have been obtained in the first place from the East Indies, as the plant is not known to grow either in China or Japan.

It seldom attains a greater height than 8 or 10 feet, and the diameter of its stems is not more than 2½ inches. The wood is remarkably soft and light—so light indeed as to appear nothing more than a mass of cellular tissue, and might readily be mistaken for pith; but upon microscopic examination, the annular rings and medullary rays are distinctly visible, though exceedingly fine. It is the large amount of cellular tissue present which causes so great a degree of expansion to take place. When dry, and submitted to pressure, the cell walls collapse, and are pressed against each other, but upon coming in contact with heat and moisture when placed in hot water, the cells immediately absorb the moisture, and regain their natural bulk; the effect of the moisture also expands the vascular tissue or woody fibre, and in that way causes the instantaneous opening of the chip-like objects. The material is in common use amongst the natives of the East Indies for the manufacture of various articles, both of dress and domestic use; its extreme lightness recommends it for many purposes, such as fishing floats, swimming jackets, bottle cases, but more especially for hats, as it is a bad conductor of heat, and the hats can be made of almost any thickness, and still be exceedingly light. For modelling it is a favorite material with the natives, who turn out some really beautiful articles with it. There is a very fine model of a temple made of the Shola in the East India Museum, and another in the Kew Museum.

The stems are usually cut about the months of April and May, and are commonly sold in the bazaars at Calcutta. From the foregoing description it will be seen how simple in structure these startling "mysteries" are, and how easily and cheap they may be made. From a very thin slice of the wood

a large number could be produced, and many such slices could be cut from one stem. I believe that the "mysteries" hitherto sold in London have all been imported from India or Japan, but there is no reason why they should not be made in this country, and perhaps at a cheaper rate than purchasing them of the Eastern manufacturers. The material, if the demand for the articles continued, could be imported in almost any quantity from the East Indies, and by cutting the stem up into thin slices, and then stamping the objects out with a kind of die, thousands could be produced and rolled into a small compass in a very short space of time. J., in *Gardeners' Chronicle.*

New Vegetable and Flower Seed.—It may be to the advantage of seed-growers and seedmen to know that for all the novelities they can produce in the above line, the subscriber will for a small consideration give testimonials, of which he begs to submit the following examples:

New Early Pea.— I beg to state that I have given your new early Pea (the Racer) a fair trial with some of the earliest Peas known, and found it to come in 2 days 5 hours 46 minutes and a few seconds before any of them. It is likewise a stronger grower and better bearer than Precocious (alias First Pod). I shall want two pecks of it this year if you can supply me with them.

New Late Broccoli.—As a late variety of this esteemed vegetable is a great desideratum for gardeners, I find your new late sort is likely to prove so. The seeds of it were sown in the usual time, in June, and the plants transplanted in the month of July. The plants do not attempt yet to show heads, although nearly a year has elapsed—this I therefore think will prove that your late sort (Hybernator) is the latest known.

Cauliflower Seed.—The Cauliflower being reckoned by epicures as the finest flower grown in the garden, your plan of raising the seed in Norway on purpose to make the plants hardier in the winter months in this country is a step in the right direction. I have lately been cutting some fine heads raised from your seed, and that in the time of severe frost and snow; you may therefore judge of my triumph in supplying my employer's table in such a season. Send me as many packets of seed as you can, for many of the gardeners round who have seen mine want a supply of seed.

New Early Cabbage—Your new early Cabbage (Tender-heart), I find is a first-rate early sort. On trying it with Little Pixie, Nonsuch, Reliance, and other dwarf early varieties, I found it comes in a few days earlier than any of them, and is of the most delicious flavor. Send me 2 lb more of the seed.

New Kidney Potato.—Your Emperor of the Kidney's is, I find on trial, an excellent variety for withstanding the disease, and for productiveness. I tried it against Prince of Wales, Barsetshire Kidney, and the Creamy yellow, and found it produce a far heaver crop, and of better quality. Send me 10 or 12 pecks, if you have such a stock to dispose of.

New Cucumber.—Your new Cucumber (Breech-loader) I have grown this year, and find it is a Black Spine of great length and beauty. From its fine shape and length it will be there, or thereabouts, in making a "bull's eye" at the exhibition tables. Send me a packet of three more seeds.

Pink, Carnation and Picotee Seeds.—The Pink, Carnation and Picotee Seeds, grown by your "Timbuctoo" correspondent, of which you furnished me with packets in the spring, have grown satisfactorily. The plants are now coming into bloom, and showing some extraordinary double show-flowers. Send me another supply of packets of all sorts.

New Dahlias.—Your new dark maroon Dahlia (Lucy Neal)—if I had raised one-half so good, how happy I should feel! Be sure and secure me a plant in the spring.

The above testimonials are samples, in different styles, and only apply to a few of the novelities in new seeds, &c., which swell the "Fat Catalogues" now yearly published. Applications from seed-growers, seedsmen and nurserymen, will receive prompt attention by addressing a line to "Investigator," at the Post Office, Hookem-cum-Grabem, Barsetshire.—W. T., in *Gardeners' Chronicle.*

Horticultural Notices.

AMERICAN POMOLOGICAL SOCIETY.

President Wilder has issued the following Circular.

The affair promises to be one of the most interesting ever held, and we hope our readers will do their utmost to second the efforts of the officers of the Society:

"Whereas, the meeting of this National Association was to have been convened last September, and *whereas*, this meeting was postponed to the present year, Therefore, the undersigned give notice that its Eleventh Session will commence in the City of St. Louis, Mo., on Wednesday, Sept. 11, 1867, at 11 o'clock A. M., at Mercantile

Library Hall, and will continue several days. All Horticultural, Pomological, Agricultural, and other kindred institutions in the United States and British Provinces, are invited to send delegations as large as they may deem expedient; and all other persons interested in the cultivation of fruits are invited to be present and take seats in the Convention.

"And now that the rainbow of peace has again spanned the arch of our Union; now that our Southern brethern, after a painful separation of years, are again to be united with us in full fellowship and communion; now that our meeting is to be held for the first time on the "Father of Waters," in the Great West,—we invite all the States and Territories to be present by delegation, that the amicable and social relations which have heretofore existed between the members of the Society may be fostered and perpetuated, and the result of its deliberations, so beneficial to the country at large, be generally and widely diffused.

"Among the subjects which will come before the Society, will be that of the Revision of the Society's Catalogue of Fruits. The special Committee appointed for this purpose are now, with the various State and Local Committees, actively engaged in collecting such information as will aid in determining what varieties are best adapted to the different sections and districts of our country; and this information, in the form of reports, will be submitted to the action of the Convention. In compliance with a resolution passed at the last session of the Society, the several State Pomological and Horticultural Associations are requested to compile lists for their own States or Districts, and forward them, at as early day as possible, to P. Barry, of Rochester, N. Y., Chairman of the Committee on the Revision of the Catalogue.

"Members and delegates are requested to contribute specimens of fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the Society and the science of American Pomology; and as the fruits of the South and South-West will then have attained their size, it is especially desirable that a grand display from these sections be made.

"Each contributor is requested to come prepared with a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as soon as practicable."

"All persons desirous of becoming members can remit the admission fee to THOMAS P. JAMES, Esq., Treasurer, Philadelphia, who will furnish them with the Transactions of the Society. Life membership, ten dollars; Biennial, two dollars."

"Packages of fruits, with the name of the contributor, may be addressed as follows; "AMERICAN POMOLOGICAL SOCIETY," care of C. M. SAXTON, corner Fifth and Walnut Streets, St. Louis, Mo."

MARSHALL P. WILDER, *President.*
JAMES VICK, *Secretary.*

THE GRAND BAZAAR

In aid of the decoration for the Horticultural Hall, in Philadelphia, will be held on the 29th of May; and it is believed that nothing so beautiful or attractive, in the shape of a public exhibition, will have been seen in the city since the memorable "Great Sanitary Fair." Horticulture is determined to do itself credit as one of the active powers of Pennsylvania. The Hall itself is a source of great pride to Philadelphia, as the following extract from an editorial in the *North American* will show; and the Horticultural Society seems to have determined that the Fair shall do credit to the Hall. We hope all horticulturists will contribute liberally towards it. The following is the extract referred to:

"The Girard Fire Insurance Company, Mechanics, Fire Insurance Company, Fire Association, First National Bank, Bank of the Republic, National Exchange Bank, Seventh National Bank, Horticultural Society, and other public institutions, have just housed themselves in new and handsome quarters, which are quite creditable to the enterprise of the city. The Fidelity Safe Deposit Company, Academy of the Natural Sciences, Mercantile Library, the Sixth National Bank and the Corn Exchange Company are about to follow suit, by erecting new edifices for themselves at considerable cost. We hear talk, also, of other corporate changes, which, however, are as yet indefinite. Some of the new structures are among the largest in Philadelphia. The Horticultural Hall certainly is so; and though only costing (for the edifice) $90,000, will long be regarded as among our finest public buildings. It is a fit companion for the Academy of Music, by the side of which it stands."

PENNSYLVANIA HORT. SOCIETY.

The April meeting,—the last to be held in the Old Hall,—was densely packed by ladies and gentlemen; so much so that it was with difficulty we could move about through the living mass. The articles on exhibition, also, were so numerous that room could not be found for them, and many things had to be set on the floor, in holes and corners,

where one had to hunt for them to admire their beauties.

One of the greatest attractions was the fine display of Marechal Niel Roses, exhibited by Mr. Bauman of Germantown. It has been doubted whether it was possible for a Rose to be as beautiful as it has been figured by Van Houtte, and as it has been represented by other foreign journals; but Mr. B.'s plants show that, if anything is wrong, the descriptions of Europe fall short of its beauty in this country. He had a dozen large plants, about 2 or 3 ft. high, loaded with large yellow flowers, sweet-scented and "double as a Rose." It is a very vigorous grower and free bloomer, and will be very popular for a long time to come. We believe it was raised from an American rose, Isabella Gray.

Next, in point of attractiveness, was the splendid show of Azaleas, by Robert Buist, who has not only, perhaps, the finest collection in the States, but knows how to grow them, so that one may have an extensive collection in small pots, well bloomed, and of good shape,—which we take to be the essential points of good Azalea cu'ture.

As a record of what was done by the Society under the old arrangements, and for comparison with future efforts, we, on this occasion, give the Secretary's report entire.

REPORTS OF COMMITTEES.

The Committee on Plants and Flowers beg leave to report the following awards:

Best Table Design, Basket of Cut Flowers, Parlor Flower Stand, D. McQueen, gardener to J. Longstreth.

Best Hand Bouquets, pair, John Dick; Second best, D. McQueen.

Best Collection 12 Plants in bloom, Benj. Bullock; Second best, D McQueen.

Best Ferns, 6 plants, superb specimens, and Lycopodiums and Selaginellas, Jos. Bevis, gardener to Dr. Camac.

Ferns, Lycopodiums and Selaginellas, and Cinerarias, 6 pots, D. McQueen.

Marantas, 6 pots, B. Bullock.

Dracœnas, 6 pots, Jos. Bevis.

Pansies, 6 pots, James Thomas, gardener to M. Whetham.

Hyacinths, 12 cut specimens, D. McQueen.

Owing to such a fine display your committee are unable to pass the many fine plants on exhibition, and ask the Society to sustain them in giving the following special premiums:

For a beautiful collection of Azaleas in bloom, Robert Buist, a premium of $5.

A special premium for Marantas to Jos. Bevis gardener to Dr. Camac, $1.

do Polyanthus, to J. McDonald, gardener to M. Baird, $1.

do Collection of Roses, to L. C. Bauman, $2.

do Collection of Plants, to D. McQueen, $2.

do Hanging Basket to the same, $1.

do Hanging Basket to J. McDonald, $1.

do Hanging Basket, to Jacob Huster, $1.

Your Committee calls attention to a collection of Double Hardy Violets, from the garden of Charles Harmer, Esq., which we consider very fine.

The Fruit Committee report some fine specimens of "Vicar" and Glout Morceau Pears in good condition, which were kept in Hellings & Bros.' Fruit Preserving House since last October; they are, however, deficient in flavor. Your committee would also state that some very superior Currant Wine was exhibited by Mr. Charles Harmar, made in 1852.

The Committee on Vegetables report the following awards:

Jas. McDonald, a premium of $1 for a collection of well kept, last fall Vegetables, and a premium of $2 for the best collection of Vegetables by an Amateur—Jacob Huster. Also a premium of $2 to the same for 6 heads Cauliflowers.

SOUTH PASS (Ill.) HORT. SOCIETY.

NURSERYMEN TAKE NOTICE.

South Pass, Union Co., Ills.,
March 2d, 1867.

Editor of *Gardener's Monthly:*

It has been noticed, for some time, that a great many Apple trees are dying in this region; and the subject has assumed so much importance that, at two recent meetings of our local Horticultural Society, it has been the special subject of discussion. This discussion has proved to the satisfaction of our Society, that these trees have died because they were *manufactured* in opposition to scientific rules, viz.: by grafting on root tips.

The testimony shows that stock-grafted trees have invariably done well, and that root-grafted ones have done ill. One man reported that, of 800 Apple trees planted 8 years ago, 65 are living; and that of 500, planted at the same time, of same varieties and similarly treated, he has lost but five. The first lot were root-grafted, the other grafted on the stock.

The Society passed the following resolution without dissent: *Resolved*, That we recommend that no root-grafted Apple Trees be hereafter planted.

F. A. E. Holcomb, *Secretary*,
South Pass Horticultural Society.

THE
GARDENER'S MONTHLY.
DEVOTED TO
Horticulture, Arboriculture, Botany & Rural Affairs.

THOMAS MEEHAN, Editor.
W. G. P. BRINCKLOE, Publisher.

JUNE, 1867. VOL. IX. --NO. 6.

Hints for June.



FLOWER-GARDEN AND PLEASURE-GROUND.

Care for the walks on the grounds. It will excuse many neglects of other things. Then care for the grass,—frequent rolling and mowing benefits a Lawn amazingly, so does slight dressings of salt, wood ashes or guano. Weeding of lawns is seldom thought of, but if neglected, some weed or another will be very liable to grow out the grass.

The soil in the flower beds should never be allowed to remain hard, as it will sometimes get after heavy rains. Hoe as soon as it dries, and then pulverize finely with a rake: loose powdered soil will not dry like compact clods.

Trees planted last spring will be benefited by going over with a rammer and pounding the soil firm about the trees when dry. It is often much better than a watering. Sometimes trees do not push their new buds freely after transplanting, through root injuries. Pruning always helps them in such cases.

Rose bugs should be shaken off and destroyed when they appear. This will save the skeletonizing of the leaves by the larva; and cut off the flowers of roses as they fade,—the second crop will be much better for the attention. Seeds of all flowering plants should be also taken off; all this assists the duration of the blooming season.

Propagation by layering may be performed any time when strong vigorous growing shoots can be had. Any plant can be propagated by layers. Many can be readily propagated in no other way. Cut a notch on the upper side of the shoot, not below, as all the books recommend, and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parent. Stakes for plants should be charred at the ends before using, when they will last for years.

No trees, Evergreens especially, should be suffered to have grass grow about them for a year or so after planting. It becomes "rank" in the deeply loosened soil, abstracts moisture, and otherwise seriously interferes with the tree. When the tree gets a fair start, grass does less injury; and when it becomes a tough sod, and the tree by its shade, or say by frequent mowing keeps the grass short, the grass roots do not penetrate deep, and the sod is a benefit, by keeping the surface spongy, and the substratum cool.

Evergreen hedges will require attention as they grow. Where the height desired has been attained, the top and strong growth should be cut back while they are still watery. The side shoots need not be touched till past midsummer. All wise people now employ the conical shape for hedges. In cutting back the top growth at this season, the conical form can still be preserved.

FRUIT GARDEN.

Those who want to make new plantations from those on their own grounds, will find it best to layer runners into pots, sunk in the earth near the roots for the purpose. They thus get very strong plants, which transplant in September, and make beds which will bear abundantly the next season.

Grapes coming in bearing should not be permitted to perfect large crops of fruit while young. It is excusable to fruit a bunch or so on a young vine "just to test the kind," but no more should be permitted till the vine has age and strength. Vigorous growth, and great productiveness, are the antipodes of the vegetable world. Encourage as much foliage as possible on the vines, and aim to have as strong shoots at the base as at the top of the cane; this can be done by pinching out the points of the strong shoots after they have made a growth of five or six leaves. This will make the weak ones grow stronger. Young vines grow much faster over a twiggy branch stuck in for support than over a

straight stick as a trellis, and generally do better every way.

Where extra fine bunches of grapes are desired, pinch back the shoot bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too much pinching and stopping injures the production of good wood for next season. These hints are for amateurs, who have a few vines on trellisses; for large vineyard culture, though the same principles hold good so far as they go, they will vary in their application. Many persons take layers from bearing grape vines for increasing stock, a few plants taken this way does not hurt much, but when a vine is severely layered it injures the vitality of the vine.

Now is the time to look after the Black Knot in Plum and Cherry trees, cut out and burn the first green excrescence seen.

The Curculio still baffles any feasible plan to outmatch him, the only good thing is the jarring process, but unfortunately in most gardens there are so many things to do in regular order every day that these "incidentals" get overlooked until too late; those who have large orchards, and can thus afford a man to look specially after these thing, find plums a very successful crop.

VEGETABLE GARDEN.

Cabbage and Brocoli may still be set out for fall crops, also requiring an abundance of manure to insure success.

Lettuce, where salads are in much request, may yet be sown. The Curled Indian is a favorite summer kind; but the varieties of Cos, or Plain-leaved kinds, are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

Endive is becoming very popular as a winter salad. Now is the time to sow. The Curl-leaved is the most desirable. Sow it like Lettuce.

Peas for a fall crop may be sown. It is, however, useless to try them, unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England, where the atmosphere is so much more humid than ours, they nevertheless, have great difficulty in getting fall peas to get through free from mildew; and to obviate these drying and mildew-producing influences, they often plant them in deep trenches, made as for celery, and are then much more successful with them.

Celery for early use is often planted out this month, though for winter use July or August will be early enough. It is best to set out in shallow trenches, for convenience in watering, the celery being fond of hydropathic appliances. If the ground has been deeply subsoiled, and the subsoil well enriched, the trenches may be near a foot in depth, for convenience in blanching; but beware of planting down in poor, barren subsoil. Many plant in double rows. Where very superior celery is not an object, this will do, but the single row system is the best for excellency. The season is now arriving when the advantages of subsoiled ground will be apparent. In such soil plants will grow freely though there be no rain for many weeks. Some of our best growers now plant entirely on the surface, and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Cucumber for pickling may be sown this month.

Parsley for winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Asparagus beds should not be cut after the stalks seem to come up strong, or there will be but a poor crop the next season, and the beds will "run out," in a few years.

The Swede Turnip or Ruta Baga should be sown about the end of the month. A well-enriched piece of ground is essential, as by growing fast they get ahead of the ravages of the fly. Manures abounding in the phosphates—bone-dust, for instance,—are superior for the Turnip.

Sweet Potatoes must be watched, that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and with a rake or pole, the vines disturbed somewhat from their position.

Communications.

BOTANY AND HORTICULTURE BRIEFLY CONSIDERED IN THEIR RELATION AND USES TO MANKIND.

BY WILLIAM BULL, F. L. S., F. R. H. S,, F. R. B. S. *Socc. Hort. Berol., Bruxell. et Paris, et Soc. Agric. et Bot. Gandav. Socius. New Plant Merchant, King's road, Chelsea, London.*

The subject I have selected on which to offer some observations in your journal, is so wide an one, that to treat it completely, would far exceed the limits of the few remarks I now purpose making. Its interest however is so absorbing, that I venture to believe my general reflections may, however imperfect in their character, be acceptable, because they

are convictions formed by observation, and impressed upon me by practical experience; indeed the Horticulturist and Botanist, by reason of their direct and studious contemplation of the Vegetable world, and by their contact, so to speak with nature's operations in it, ought to possess a firm ground wherefrom to estimate this subject.

In the natural condition of man's existence on this world, the vegetation with which it is clothed is an essential one; whether we consider it as of mere existence, or relating to the qualities which spring from a contemplation of beauty. The distinction of country and climate, is expressed thereby in more recognisable features than rocks or physical conformation. The luxuriance of the Tropical Forest with its giant Ferns, or tall high-crowned Palms, and undergrowth of beautiful flowers, has a distinctive significance very different from the Pine-woods of Northern Europe, the peculiar features of an Agricultural homestead, or a picturesque landscape. The human mind receives its impressions from without, and the rule of action evolved from the inner consciousness is modified thereby. The necessities which press upon him; the facilities which surround him; create rules for man's action or inaction. The character of the individual forms the character of the nation, or race; and so is history influenced. Such mighty power is conspicuously the effect of a country's vegetation.

In tropical countries and those districts where the fruits of the earth grow in rank abundance, are raised with little care, and can be gathered almost without labor, the habits of the people are as surely formed by the condition of their life, as in countries where different temperature imposes more stringent terms. The results of this can be traced in the history of the world.

The terms which Nature thus deals to some races enervate with them, in varying degree, those qualities of industry and thrift, that are the bases of so many virtues, those which civilized nations and intelligent people prize so highly.

Energy, physical strength, a strong tie of the individual to the public weal, so on to public virtue, liberty and power; these are the broad effects, however they are modified by disturbing influences. The effect of a country's vegetation is not only primarily, but often very directly traceable. Probably the growing tree first taught men the strength of a column; but in Egypt, this architectural resource took the form and ornament of tied bundles of the graceful Papyrus, growing everywhere along the Nile. Elsewhere where the trees rose with straight stems, so the Greek artist shaped his column with a different contour and gave it the foliated capital, most likely copied from the Palm. So with color and form in the arts, as these have risen to minister to advancing refinement,—Art being an imitative adaption of nature's expression of beauty.

In climates where the flora is so splendid, mere splendor and display are characteristics of the people, in architecture, personal adornment, and most forms of decorative art. Nature never errs in her principles of color and form.

Here then, men obtain their teaching as to harmony of colors, and every departure from the happy precept is a fault for which we feel a condemnation, that sometimes we can hardly define. The exterior lines of foliage, of blossom, the pendant raceme, have ever been, and are still models for form.

When we estimate beyond these considerations the vast material usefulness of the Vegetable Kingdom, who can deny its rank of importance in the beneficial plan of the Creator, or underrate its influence on the destinies of mankind? It supplies directly, bread—the staff of life—and multitudinous forms of fruit and produce, by which we live and and are clothed, and it feeds every creature on which we feed. To systematize our knowledge of, and intimately acquaint ourselves with this department of nature, is the vocation of the Botanist; and to extend its uses in the most practical sense is the vocation of the Horticulturist.

These sciences or professions are very intimately connected; one leading and stimulating the other. This proposition can be illustrated by the following example: In the year 1809 a shrub with lilac flowers was introduced from North America which Botanist decided was a Rhododendron. Again about 1817 another shrub was introduced from India, also a Rhododendron, but as the last named came from a tropical country, however much its brilliant color rendered it desirable, it never could be made a denizen where a season of anything like severe frost occurred, save under purely artificial conditions, which can of course be created. An acclimatisation of plants is impossible, for whatever may be the power of the Horticulturist he can never alter the constitution of a vegetable production, whereby it exists in a given condition of atmosphere. He can create such a condition artificially, but never change the adaptability of a plant to the state of things for which it was designed. A plant may be naturalized, wherever conditions exist like those to which it is indigenous, but never acclimatised. What then was to be done with the Rhododendron, for it was very desirable to adapt in some way the beautiful Indian crimson-flowering shrub to cold and fickle cli-

mates. The Botanist had done his part by determining that both the shrubs alluded to belonged to one and the same class. The Horticulturist then began his part, and by repeated hybridization and selection, not only produced shrubs with the hardy character and constitution of the North American species, and the much desired crimson flowers; but a host of others, of various hues, from crimson to white, and white to purple.

Similar operations in respect of introducing, determining, naturalizing, or obtaining by cultivation and art, new varieties of fruits and other food products, illustrate the functions of the Botanist and Horticulturist as ministering to the daily most ordinary needs of men, by promoting and economizing the fertility of nature; as in like manner they promote and extend the knowledge of beauty in its most direct and pure examples. This then I maintain is the position occupied by the Botanist and the Horticulturist. They are workers striving in a glorious field, for results noble by their usefulness; for the Vegetable Kingdom is an essential condition of our existence, with incomparable influence on mankind; by it we simply live; for by its agency, the air we breathe is purified from the vitiation of the animal creation, and from it we draw in a vast degree the impulse to refinement, and to the growth of those qualities which are man's crown of distinction among the creatures of this world.

The practice of Horticulture, and the love for flowers, have been, and are, an evidence everywhere of refinement, springing from civilization, of gentle conditions, and of peace. Savages do not garden. Among the ancient nations when we read of their gardens, we find recorded their prosperity, and some gentle qualities. In the disturbed middle ages, when education, and many refinements of life, were mainly confined to classes, when insecurity existed abroad, it was principally in the precincts of peaceful religious houses, that gardening prospered. Of whatever form of civilization Horticulture has been, or is, concomitant, its influence and effects, are of gentleness and benefit. In civilized countries, the practice of it as an art, has flourished for centuries, and as wealth, peace, and the refinements of civilization have increased, has prospered more and more.

The perfection to which it has been brought, can be witnessed in all countries where Horticultural Exhibitions are held. It frequently happens that many of the specimens shown, are such perfect examples of the cultivator's skill, as to teach, that Art can guide nature to surpass her ordinary gifts, and that flowers and fruits can be produced under favoring conditions, artificially created, with higher development of beauty or value, than in their native habitat they have ever attained.

By the enterprise of man, from every quarter of the Globe, and every climate and country, we have now within our reach, to study, improve, and elevate our taste. The diversified, and beautiful natural features of the world's vegetation, from the jungles, rivers, rocks, forests, pampas and prairies of Eastern and Western Indies the valley of the Amazon, and the heights of California, from Australasia, the Cape; from Africa, Asia and the fields of Europe. All have yielded their tribute of floral treasures to the spirit that advancement and refinement has evoked. The taste grows by what it feeds on; first, nature provokes love for her beauty, and that love fosters the beauty, takes more knowledge of it, and grows again. Thus the Vegetable Kingdom, and with it, Botany and Horticulture, creates and feeds a gentle good taste; the result itself increasing and extending the feeling to which its existence is due, so that Horticultural exhibitions have great effect in raising the standard of character and feeling, through a direct contemplation of nature's principles and developments; they extend the range of vision and experience in these respects to an exceptional degree. Men may not trouble to define whence, or how they receive such influence, but it is felt all the same.

The planting of Parks, cultivation of Gardens and Pleasure Grounds, grand displays of the most beautiful objects in the Vegetable Kingdom, whether in conservatories or Greenhouses or at Horticultural Exhibitions, have I doubt not, a powerful tendency in this direction. Is the noble aspect of Palms, the richness of orchids, the massive gorgeousness of Azaleas, and all the graceful forms, developed in Nature's Vegetation, with their beauteous colors, and the interchange of ideas provoked by these things, lost? such certainly are not lost, but are given for man's uses and guidance by a beneficial Creator.

Philanthropists have lately been turning some of their efforts to fostering and promoting a love of plant cultivation, among the poorer classes, impressed that the cultivation of flowers, has a genializing tendency, for plants invariably possess nature's beauty, a beauty which always teaches the same sweet lesson, influencing in varying degree, the poorest up to the most wealthy, the simple and the intelligent, in like manner, silently but certainly fertilizing the public mind and heart with good.

However imperfectly, I trust I have shown that Botany and Horticulture are in close relationship to

man and that their uses are beneficial to all, for they afford an innocent, instructive and enjoyable occupation to those who have leisure time; a health giving relaxation to those whose energies are taxed to the utmost in this age of severe competition; and they exercise an elevating, humanizing influence, on the Artisan and Mechanic.

[This paper, obligingly presented to us by Mr. Bull, was prepared for the International Horticultural Congress, in London, and has an interest for Horticulturist all over the world. The relations of Horticulture to Botany have become very close within the past few years. It is not so very long since the Editor of the Botanical Magazine regretted that Geraniums produced seeds, because the seedlings upset botanical classifications; but now these very changes brought about by horticulture have really been the making of true Botanical Science. Ed.]

DOES HYBRIDIZING CHANGE THE FRUIT AS WELL AS ITS PROGENY?

BY MR. CHARLES CRUCKNELL, POTTSVILLE, PA.

I am aware that many different forms of fruit will occur on trees of the same kind, growing under different circumstances. Nay even on the same tree so many different forms are seen as may well arrest the attention, and call forth the unanswered enquiry, What has caused this?

Soil, pruning, training, climate, and the use of particular kinds of fertilizers effect the fruit to a certain extent, but all these agents combined will not explain the great difference, we see in fruits growing on the same tree. For if a dozen fruit be growing on a single tree and only one of that number exhibits a striking peculiarity of form different from the rest, we can give no reason why these agencies effect only the one fruit that will not apply with equal force to the remaining eleven. Consequently we have to look beyond these external causes for some other agent that will be likely to change the nature of the one fruit without materially altering the others.

We have been so long and so persistently taught the old doctrine that hybridization changes not the fruit itself, but the progeny thereof, that it is with extreme difficulty we can bring our minds to believe otherwise, and it takes a certain amount of moral courage to assert that this old axiom of the science of horticulture is false. Your paper on this subject some time ago gave it some hard knocks, and nothing but hard knocking will ever upset it.

I have a Belle Lucrative tree growing here, the fruit of which was uniform in shape excepting one small branch whereon grew four or five pears so unlike this variety, that I examined the trunk to see if a bud had been inserted. But no, the bark had not been disturbed. Then why should these few pears differ so in shape from the rest? Nine out of every ten fruit-growers would have pronounced them the "Vicar of Winkfield." Can it be that the flowers of this particular branch were hybridized from our "Vicars" growing close by? and the fruit thus came to be "Vicars" instead of the normal condition of the Belle Lucrative?

How shall we account for the many variations which we see every day, unless on the supposition that hybridization is the immediate cause of it. To say these are but "Sports" proves nothing, and is at best but a vague statement made to lull enquiry to sleep for the present and prevent many from investigating this subject, who have rare opportunities for so doing, and the necessary leisure at hand to throw some light on this very obscure subject.

Probably the fruits and flowers which show this sporting character most, will be found on experimenting with them to be the most readily hybridized; if so, this would strengthen the argument of hybridization changing the nature and shape of the fruit as well as the progeny grown from its seed, and would throw additional light on a subject with which at present we appear to be playing at "Blind Man's Buff." In the words of Bossuet, we should "never be weary of examining into the causes of great changes; for nothing will ever be of so much service to our instruction."

NORWAY SPRUCE HEDGES.

BY MR. F. L. HARRIS, GARDENER TO H. H. HUNNEWELL, ESQ., WELLESLEY, MASS.

In the March number of the *Monthly* you ask "Can any one tell if a Norway Spruce hedge would turn horned cattle?"

Doubtless such a hedge would if planted thick enough,– say not less than nine (9) inches or a foot apart. When planted thus, as the trees increase in size and age, the main trunk becomes so stout that they nearly touch each other, forming a barrier no cattle can penetrate.

I think we have no evergreen so well adapted as the Norway for such a purpose; and when its true merits become more generally known, its value, both as a useful and ornamental hedge plant, will supplant all else. The White Pine, however, I think second in importance to it,—when planted in the same way,—forming a thick and impenetrable fence, besides its great value as a shelter in exposed situations.

Many persons have an idea that a tree growing to such an enormous size as the White Pine, naturally, cannot be brought to form a hedge. Such, however, is not the case, as a visit to Wellesley will testify. We have specimens not over 8 feet high, 17 years of age, one dense mass of foliage, showing, as yet, no visible signs of decay: and if rightly cared for in the future, they will be equally beautiful a half-century hence.

[We did not mean "keep in" exactly, but would these hedges be *undisturbed* by horned cattle? In this part of the country, animals of this character seem to have a peculiar spite against evergreens. No matter how close or dense the evergreens may be, they butt at them like a bull at a red rag; and, although the trees may be set close enough to keep the cattle in, we fear they would "hook" the branches about so as to disfigure and spoil the whole thing, What we are anxious to know is, whether any one who has an evergreen hedge has had it *tested* by horned cattle.

The idea seems a very good one,—but in view of the great disappointment which would ensue on extensive failures, we should like to know of the hedge having been actually tried by cattle before recommending it for general adoption.—Ed.]

GRAFT-HYBRIDS.

BY P. B., ROCHESTER, N. Y.

The Editor of the English *Gardeners' Chronicle*, in the number for March 9th, 1867, speaks of the exhibition, at a recent meeting of the Royal Horticultural Society, of a russet Apple, produced on the Orange Pearmain,* by opening up the question of graft-hybrids. He asks, "Is it or is it not true that an intermediate form, a sport, or a reversion to the characteristics of either stock or scion, may be produced by grafting, and if so, on what conditions?"

This is a very interesting question. I have seen many remarkable sports among Apples, but not knowing the fruit of the stock, could not, of course, determine whether the sport was an intermediate production between stock and graft, or a reversion to the stock.

A short time ago, a gentleman gave me a specimen of the Æsopus Spitzenberg, from a tree in his orchard in Livingston Co., in this State, which was the most remarkable sport, as regards color, I have ever met with. On the ordinary red color of the Spitzenberg, there were bands of dark, purplish-crimson running from the eyes or crown to the stalk,—as clearly and smoothly defined on the edges as if they had been laid on with the brush,—giving the apple the appearance of a child's fancy ball. I have seen russet apples produced on the branches of varieties that were never seen with a particle of russet on them.

The "sweet and sour" greening is a sport of this sort which has been perpetuated. The apple is much more distinctly ribbed than the greening, and some of the divisions are sweet and some acid.

Now, we all believe that the stock does really exercise a certain influence on the graft; we have ample evidence of that in all directions: but that this influence should extend so far as to produce new or intermediate forms, colors and characters, making a real graft hybryid, or graft-blending, is a point worthy of investigation.

In the *Gardeners' Chronicle* of Sept. 8th, 1866, there is an interesting article on this subject, translated from the original, by Prof. Caspary, in Transactions of the International Congress of Botany and Horticulture, held at Amsterdam, in 1866. If any of your readers possess any facts bearing on this subject I hope they will make them known.

[There are few subjects more worthy of the attention of scientific horticulturists than this,—and the great variety of climate and circumstances that may possibly influence such hybridization, if found to exist, give great opportunities to the American observer. In Europe, notwithstanding Prof. Caspary's interesting paper, very little has been learned since the introduction of the *Cytisus Adami*, a variety of Laburnum, believed to have originated by graft-hybridization. With P. B., we hope our readers will send us any facts they may observe.—Ed.]

* I think this should be "Orange Pippin," as I do not know of any "Orange Pearmain," and think there is no such variety.

THE TILDEN TOMATO.—"PETER HENDERSON'S BOOK."

BY HENRY TILDEN, DAVENPORT, IOWA.

Two years ago this spring, after hesitating five years, I concluded to offer the seed of the Tomato that bears my name to the public. At the time I had less than a pint of seed, and sent it out simply on trial. I little thought that it would awaken such a wide-spread interest as it has; and most *certainly* I did not dream, for a moment, that the Tomato would receive, at the hands of prominent seedsmen, such unfair treatment as has been shown in more than one instance.

In sending out the seed I was careful to make no statement that my experience with it would not fully justify. And it has been my purpose, from the first, to not, in any way, force its further introduction, rather preferring to let it stand, or fall, on its own merits.

I suppose 25,000 parcels of seed of my own growing (a low estimate) have been sent out,—scattered throughout every State and Territory.

Up to this hour, but two complaints have reached me. One man writes to the Editor of the *Prairie Farmer*, "that seeds received of me the year before gave perfect satisfaction, while seed coming through them, of my growing, produced '*monstrosities*'." Daggey & Co. of Illinois, write to the Editors of the *American Agriculturist*, (and, by them, forwarded to me,) "that seed procured of me the first year did not do well; that from another source, the next year, was all that was ever claimed for it."

My correspondence developes, plainly, one fact, that is—all people are not as careful about what they undertake to do as they ought to be. For instance, I have received, through the mail, an envelope, from some town in Michigan, with a sum of money carefully folded in a blank sheet of paper, without one word of explanation. Other letters* without *signatures*, places of residence or States. If so careless in this respect it would not be wonderful if *one* in *ten thousand* blundered in attempting to grow the plants.

I have taken the precaution, each year, to sell seed from *one lot only*, after being thoroughly *mixed*.

While only the two above-named complaints have reached me, on the other hand, I have received *commendatory* letters by the *bushel*.

While nine-tenths of my crop would be pronounced first class, I reject nine out of every ten for seed purposes; and in this matter of saving seed I do not trust to any other person; consequently I have no trouble to *keep* its good qualities unimpaired. So much in explanation, now a few words to Mr. Henderson.

I have received not far from 1000 letters of complaint, within the last few weeks, from parties who procured seed of seed dealers last year. Very many of them were *specific* as to names. By far the greater portion of these mention Henderson & Fleming of New York. This firm advertised the seed, extensively, last year, and, as far as I am able to judge, by descriptions sent me, the article they sold *bore no relation whatever* to my Tomato. And Mr. H. is perfectly justifiable in saying that it should never have been sent out,—so far as his own efforts in that line were concerned.

If the experience detailed in his book is no more carefully conducted than seems to have been in this instance, it must detract much from its value.

I feel justified in making the assertion that, when the *genuine seed* has been used, the *odds* of a thousand to one will bear witness that the introduction of this Tomato has been a public benefit.

* Minus money as intimated.

OIL FOR INSECTS.—RHODODENDRONS.—VERBENA RUST.

BY P. S., CLEVELAND, TENN.

After reading your article on *oil*, last summer, I took my round in the garden, as usual, to see how things were looking. The little black fleas and green fly were holding a grand jubilee on the egg-plant; the striped bugs on the squash and melons; and the thrip on the vines in the grapery. I quietly remarked to them, "never mind, my little gentlemen; I have heard from Meehan,—your days are numbered!"

My first job was to fill a water barrel, and take it to the infested regions; then the bottle of oil, table spoon, syringe and watering pot,—mixed according to directions,—and commenced with the syringe; but the oil soon spoiled the syringe. It appears to act on the brass and leather so that it will not work. I then took the water pot, and, by holding with one hand and stirring with a stick, I managed to keep it mixed.

Now for the results. The grape vines and egg plants were badly scorched, and the insects soon returned as bad as before: but it was a cure for the squash and melons; the bugs left them, and they grew off fine.

Another thing gardeners often 'catch it' about is that the Rhododendron is a native of this country, and still we do not make such splendid shows with it in our lawns and shrubbery, as they do in England. Now any one who has rambled in the mountains, and seen it growing as I have, can easily account for it. It always grows on the north side of the mountain, where there is a stream of water running; and so there is constant moisture both for root and branch, besides the shade of the large trees above. Now, the climate of England is more favorable for the Rhododendron, in exposed places, than in this country, with its burning suns and long droughts; and I think it is too bad to charge the gardeners with want of perseverance in not overcoming what are insurmountable difficulties.

I think Mr. Henderson is mistaken in his views about the Verbena rust being caused by want of richness in the soil out of doors. Last year I prepared two beds in a new place,—dug out the clay from the bottom, and put good soil and manure in, about two feet deep: one load of manure to two of soil, with a drain from the beds. I never saw Verbenas do better than they did the early part of the season. In July they took the rust, and they did

no more good after that. Whenever the weather was very dry I watered them, as I was anxious to have as fine a display as possible.

I never have any trouble with white mildew; but as yet I have not found a remedy for the black fungus, except Mr. F. Pentland's—"throw every plant out that has it."—(I don't think oil will cure it). I keep a few secrets back about the oil business, merely stating that I was badly burned, and well laughed at, too. Your article next month, advising caution, did not save me,—as it was too late.

[They who laugh at oil for killing insects may as well laugh at sulphur, one of our best remedies,—and yet thousands of plants have been killed by overdoses of that as well as of oil. Experience shows that a very small quantity of oil is sufficient.

Our correspondent is right about the "native country" being no rule to go by. So many things do better in other countries than in their own, that one might almost feel bold enough to assert that "nature has put nothing in its best place."

Also, is P. S. right about the Verbena rust. Rich soil is no preventive, but it certainly does ameliorate the matter.—Ed.]

EXTRACTING PERFUMES.

BY C., PHILADELPHIA.

The bi-sulphide of carbon, a very volatile colorless liquid, of fœtid smell, readily dissolves the essential oils of flowers, to which they owe their agreeable odor. The process is to fill a large phial with the petals, *just gathered*, of the flowers you want to operate on, and having poured upon them a sufficient quantity of bi-sulphide of carbon, (sulphuret of carbon,) to cork the phial, shake it, and let it stand. The bi-sulphide penetrates into the substance of the petals, and expels the water they contain, which goes to the bottom. After six days maceration the bi-sulphide of carbon is charged with the essential oil of the flowers, which decant into another phial filled with fresh flowers, and this operation is repeated four times, after which, if the quantity of flowers is considerable, the bi-sulphide will be highly colored. It is now necessary to separate the bi-sulphide from the perfume. If the quantity be small it may be left in the open air, by which the volatile bi-sulphide will soon be evaporated, and the residue is then to be treated with alcohol having the strength of about 83 per cent.

This process can be performed by any farmer's daughter. But when the amount to be made is very large the oil of almonds should be added to saturate the bi-sulphide, and the whole distilled at a very low temperature in a glass retort, so as to save the bi-sulphide; and the residue is treated with alcohol as before described, and filtered through the proper filtering paper for use; large or small quantities are to be conducted in glass (stoppered) vessels. Corks may be used for stopping.

FRUIT GROWING IN WESTERN PENNSYLVANIA.

BY J. A. NELSON, MERCER, PA.

In looking over the proceedings of the Fruit Growers' Society of Pennsylvania, at their annual meeting, they give as their opinion that no one part of the State is more favorable for fruit growing, generally, than another. My residence being some 55 miles north of Pittsburg, and for a great many years having paid great attention to fruit growing, I am enabled to say something about fruit growing in Western Pennsylvania.

It has been said that along the Lake Shore region is a fine locality for fruit growing, and I suppose it is, as our wine and grape growing men are planting largely in that region. From Pittsburg, North, to the Lake, taking the counties bordering on the State line, I believe there is a large tract of country well adapted to fruit growing. Having formed that opinion, I was induced, some 25 years ago, to commence getting up an experimental orchard, and have been, from time to time, collecting new fruit, and testing them on our grounds, which now pays very well, as we seldom or ever fail, any year, in having more or less fruit. For a better fruit locality I do not wish.

By planting on high ground (Chestnut-timbered land, if you have it), and giving your orchard the right kind of culture, destroying insects, &c., you are most certain to raise fruit. You might as well expect to raise a crop of corn without giving to it any work after planting, as to grow fruit by planting out on a sod and give the trees but little attention afterwards. It takes a great deal more labor to grow fruit now than it did when our country was new and first cleared out. The fruit grower has not only to watch and destroy the insects bred on his own trees, but also those coming from his careless neighbor's grounds.

I was much surprised to see so small and poor a show of fruit at our State Fair, at Williamsport, Fall of 1865, and might say the same of the State Fair at Easton, Fall of 1866, as we had a fine crop of fruit on our grounds both seasons; (see *Monthly* for November, 1866, page 352.) I would suppose that if there was fruit, generally, in Eastern or Middle Pennsylvania, in '65 and '66, our fruit men

neglected very much to bring it out for exhibition at our State Fairs.

As I have said more now than I intended at first, I shall close by saying, that if we follow the advice given by some of the old books and authors, on planting, culture, &c., we will spend all our time in digging great, deep holes for our trees, trenching the ground,—and, after all is done, raise no fruit. But let us rather take and study the tree or plant, when grown in its natural state, and imitate it, as near as possible, in transplanting. From my own experience, I can look back and see where I spent a great deal of money and labor in useless work, all by following the kind of advice given by authors who had, probably, no experience at all in fruit culture:—if they had, it was far from its proper course.

SULPHUR FOR GRAPES.

BY C. N., NEWARK, N. J.

I see, in the *Monthly* for February, 1867, Mr. Jas. Lamont thinks there is nothing wonderful in Richard Miller growing grapes without sulphur. I agree with Mr. Lamont on that point. I am surprised that there are so many gardeners who cannot grow grapes even with sulphur, equal to Mr. Miller. I came to the conclusion that an able grape grower never uses sulphur at all,—for grapes do not require it.

I often hear of gardeners using from five to twenty five lbs. per annum. Now, if Mr. Lamont or Thompson will call on Mr. Miller they would see how he grows grapes without sulphur. Mr. Lamont does not understand me. I said there was 20 lbs. of fruit on the vine, and the largest cluster was 5½ lbs. Now I shall add that the berries measured from 3½ to 3¾ inches in circumference. I suppose there is nothing wonderful in that!

Mr. Miller is an excellent gardener, and was little known beyond his garden, before I brought his name before the public. He desires me to say no more about his handiwork; therefore, I will let him fall back to obscurity, where I found him.

"Gardeners" spring up like mushrooms, to the great injury of Horticulture. If a man labors in a garden twelve months, next year he turns out a "gardener."

Mr. A. has a fine range of grape houses, and had excellent crops of fruit. But his gardener was taken sick and left. The successor went on very well to the first of July: at that time he wanted 25 *lbs.* of sulphur,—for there was a little mildew and a few red spiders on the vine. Mr. A., next day, went to see what had been done with the sulphur, and behold! the fruit, foliage and floor was yellow with sulphur. "What! what," says Mr. A., "is this my grape-house, or the sulphureal regions." This touched the dignity of the gardener. He said "it must be all right for he had book authority for it." He brought a book, and there it was, sure enough: "one lb. of sulphur to be strewn over every twenty square feet."

The above will excite *brimstone gardeners*, but good ones will approve what I have said.

HORTICULTURAL EXHIBITIONS.—A SUGGESTION.

BY T. T. SOUTHWICK, DANSVILLE, N. Y.

Horticultural Exhibitions are becoming to be held, annually or oftener in most of our large towns and cities, and at which fine displays of fruit is made. In nearly all cases those bringing fruit for exhibitions select the largest and finest specimens. This is but natural, and is right or proper as showing the result of good culture, and in stimulating others to aim to greater perfection. While there is a great deal of good attending all this, there is some harm, for a deception is practiced, and false ideas engendered.

Since the culture of fruit, throughout the country has attracted so much attention in the ranks of the people, these Horticultural Fairs or Exhibitions are attended by hundreds, and often by thousands—persons frequently going a long distance to attend them. And why do they flock to these Exhibitions? Certainly from no mere idle curiosity to look at some fruit. But they go to *learn*. They go, that they may learn to judge of the real or comparative value of the fruits they see on Exhibition, and may be to hear the opinions of professional Horticulturists. And just here I would say, that it requires a remarkable clear head in one, to listen attentively to the discussions as held in Fruit Conventions, and not go away with one's ideas sadly mixed up. "A" pronounces some particular variety of fruit on exhibition, as being "first quality and delicious." "B" claims it is "third rate and hardly fit for the pigs." 'A' and 'B' are "Professionals," and the balance of the alphabet, who are *not* "professionals," are left in wonder, doubt and confusion.

What is learned? The shape, size and color of the fruits,—good and important,—but stopping short and of by far the most important lesson,—the *eating* quality of the fruit. Some specimen may please the eye by its color, size or shape, but will it delight the taste. To the many this question must remain unanswered.

Books of descriptions are not always satisfactory.

Opinions of individuals not always to be depended on, for men's tastes differ. To remedy this want I respectfully submit to the consideration of the Managers of Horticultural Exhibitions, the following suggestion. Invite the usual contribution of selected specimens. In addition to this, urge each exhibitor to bring a quantity of all the kinds he has, and of such quality as may be gathered from the tree, or as would naturally be put up for market. See that they are properly named, and then arrange them on a table in the Exhibition room, and appoint a suitable person to sell, by the single one or dozen, at the compensating prices, for the benefit of the owner, or for the Society, when the fruit may be donated, as will often be the case.

By this simple plan two important points will be gained. All will have an opportunity, each for himself *to test the eating quality of the different kinds.* To test and compare, a large number at the same time. Again the average size of different kinds will be shown. A desirable thing, and not to be otherwise reached.

Then again, a taste for fine fruit will be fostered. Few markets afford the more choice qualities of fruit. "Good enough for market" is an unhappy maxim. Many there are who in all their lives, have never, for want of opportunity, tasted some of the more choice varieties of fruit. This is particularly of the Pear. How gladly and how profitable such persons would spend a few shillings or dollars in testing by tasting.

These Exhibitions should be made in the fullest possible manner, Public schools of instruction in Horticultural matters for *the people.* The stronger the love entertained for Horticultural pursuits, in the ranks of the people, the stronger grows Horticultural Societies. The more useful the societies, the stronger the love. Therefore may every means be adopted to foster, and encourage the growth of this love.

If it be objected to by any sensitive individual that this retailing partakes of hucksterage. I would answer, if a petty pride is better than public instruction,—much needed,—then let Horticultural Fairs remain, what too many are, to day, almost useless for the good of the people.

A country whose growth Horticulturally is as rapid as ours, needs *every* means possible employed to instruct, correct and encourage.

PURPLE AND WEEPING BEECHES.

BY MR. P. J. BERCKMANS, AUGUSTA, GA.

I have just received the March number of the *Monthly*, and this reminds me that you have fallen into a slight error in regard to the Purple Beech, as stated in the February number. The origin you give of the tree is correct, but I differ with you as to the fact of its seedlings coming green and pale copper colored. As far back as I can remember, when living in Belgium, we made extensive sowings annually, of Purple Beech nuts, for forest cultivation, and very few of the seedlings were different from the parent,—and these green-leaved ones were more probably, offsprings from nuts of the common green variety accidentally mixed with the others.

We have raised several hundred thousand plants of the purple variety in this way, and, in many instances, there were found seedlings among the beds which showed leaves of an almost black tint.

In 1852, during a visit to the old homestead, I selected about two thousand seedlings which showed the darkest hue of foliage, and brought them to New Jersey, and gave several hundred to the late Wm. Reid, in whose nursery some specimens are doubtless to be found yet. I had a large number of Purple Beech seedlings growing here, but the climate is not favorable to it. The foliage is of the deepest purple in the spring and until June; but after that period the color changes gradually until towards August, when the tree looks like the common green variety.

While on the subject of Beech trees, I have seldom met, here, with specimens of the Weeping variety: the original tree of which stands in the park of Baron de Man, at Beersel, Belgium, and is truly one of the most curious trees I have ever seen. I have often taken friends to see this curiosity, as the tree stands a short distance from our country seat. The body is now, perhaps, three and a half to four feet in diameter at the ground; grows twisting up to a height of twelve or fifteen feet, and actually looks as if it struggles under an immense weight which was pressing it down; the branches then spread to a distance of nearly a hundred feet, forming an immense vegetal carem.

This tree is little known, and I have never seen any mention made of it except by Andre Leroy, to whom I showed it several years ago. Its history is this: Some sixty years ago the father of the present gardener was planting out avenues of Beech trees and the Baron told him to throw out a very crooked specimen, which was done; but the gardener planted it in a corner of the park then seldom visited, and now has grown to be a most wonderful specimen of fusus naturæ.

I have often tried to grow seedlings from it but it always resulted in producing the ordinary straight variety, showing that, in this instance, it is not a species, but an accidental form, that can only be perpetuated by grafting. The Purple Beech, on the contrary, I am satisfied is a species, as it reproduces itself in most instances.

[We give with this a drawing of a beautiful specimen of the Weeping Beech, now twenty-five feet high, growing on the grounds of D. D. Buchanan, Reid's Nurseries, Elizabeth, N. J. It was from



Mr. Reid himself that we had the statement that Beeches "from seed, produced only copper-leaved plants,—the richest purple colors can only be fully maintained by grafting."—Ed.]

GRAFTING GRAPE VINES.

BY MR. F. G. FOSTER, RALEIGH, N. C.

I see in the February No. of *Gardener's Monthly*, a communication from Dr. J. Stayman, of Kansas, on Grafting the Grape. I hope he will pardon me for saying that I have been much diverted at his manner of Grafting the Grape, not at its impracticability, but at the trouble and expense of his mode—the elbow travelling just to reach a thumb. Look at his investment, "a shoemakers knife, a *sharp* pen-knife, a small iron wedge (of such a width, and for a certain purpose) a *strong-pointed* pen-knife, a wooden mallet and a fine saw." This would cost, in *Confederate money*, about $10,000, and I don't think they could be bought for even that sum, now.

A Grape vine is certainly very valuable, and would be cheaply bought even at the Doctor's price and investment; but we, away down here, have been in the habit of acting a little differently from the mode practiced by the Doctor, in grafting grape vines; and that without thinking it a secret,—we have thought our mode was known throughout America; but from the contribution in the Feb. No. of your magazine, and the assertion of Mr. J. W. Merrick, Jr., in the August No., I am led to believe that we know a little more about grafting the grape than we thought we did. Then let me give you a new mode, and if those who practice it find it as successful as your contributor has, there will be very little demand upon nurserymen for grape vines, and very little complaint among *your* readers as to failure in raising the vine by grafting. I don't pretend to say that our way will be successful everywhere, but I do assert that as far as known it has proved eminently successful here.

Provide yourself with a sharp knife; this is the only instrument necessary beside a good grubbing hoe, for taking up vines that are not where you want them, and for procuring *roots* for grafting. Graft all the time on the *root* for it is far preferable on the ground of supply. Cut your roots about 18 inches long for stocks, and your scions for grafts almost any length, from 4 in. to 1½ feet, the latter preferable to the farmer, but 12 in. is the length we prefer. Graft after the manner of whip grafting, wax well and plant so as to leave the *top* bud of the graft above the surface. If you fail then in raising vines, you have experienced a loss which we cannot appreciate. We use *any* kind of grape roots, the wild generally taken because so abundant. In our hands we fail no oftener than with the apple, pear, plum, &c. Give me a cutting and I will show you, in twelve months, a fine vine.

I am very much interested in the cultivation of our native fruits, and find much valuable information in your estimable journal on the subject, and think that if all your agricultural and pomological friends were to give you their plans and mode of proceeding, as has the Doctor before alluded to, we would all be a happier and a better people. In taking leave of the subject, I beg the Doctor to give our plan a trial. Cut your grafts just before the vines would bleed in spring, graft them immediately, in the manner described, and you will have 8 or 9 in ten to live. Your contributor manifests so much interest in his article in the culture of fruits, that we would like very much to correspond with him and interchange some of our varieties.

REPLY OF "THE DISCOVERER OF THE ROOTLING VINE" TO MR. HENDERSON.

BY W. N. BARNETT.

Your kindness, Mr. Editor, in permitting me, in February, to reply to the erroneous imputations which Mr. Henderson made against me in December, has not been forgotten: and, now that he has come out again, pages 106–8, endeavoring to exculpate himself from the grave charges which I fastened upon him, and making further erroneous statements, I feel it a duty, both to the public and myself, to correct him. Though the pen he wields be coarse and brazen, and the ink that flows from it foul and black, the scratches and the stains are not indelible. The pencil of truth will obliterate the error. I propose to speak of facts alone,—the rest, as not to 'our taste,' will be passed by as unworthy of notice; for that needs no comment of ours so long as he is pleased to stigmatize himself as "a common gardener," and an "ungracious rascal."

In his denial of ever having "heard of" me, he forgets an old customer; forgets having mailed to me, "unasked," year by year, his voluminous circular or catalogue; forgets the gratuitous package sent me, "unasked," with explicit information by written letters to me, personally, of his doings at Jersey City. In return for these kindnesses I *thrust* upon him, "unasked," my circular, innocently supposing then, that I was mailing it to an eminent propagator and gentleman, too. I did not abuse him publicly for his doings. His excuse, now, for his first attack upon me is, that he omitted my name and address, while, at the same time, he so described my circular that no one could fail to make a personal application: and this was actually the case—for it was brought to my attention by strangers as well as friends at the time.

On page 41, I stated that *five* of his quotations, as purporting to be from my circular, were *entirely untrue*. This he 'emphatically' denies. These are the 'five,' viz:—"Taint this brilliant discovery," "a secret," "wonderful discovery," "not by the beaten track trod for centuries, and detailed by a galaxy of high names known to horticultural fame," and "skillful discoverer."

All this is no language of mine, but manufactured expressly for the occasion by Mr. H. My circular is before you, Mr. Editor, and you are at liberty to publish it to confirm this statement, or it can be sent to any one who chooses to examine for himself. Six other mis-quotations, in which he admits that he "changed the wording," are now passed over, although I fail to see how they can, thus changed, be quotations.

The offer of $1000 for a hundred rootlings was a bona-fide offer, and so understood by those who witnessed it. It was made to others, both before and after. The audience at Messrs. Parsons' Salesrooms where, alone, I ever met him, was, almost without exception, composed of intelligent gentlemen—propagators and fruit growers,—who represented hundreds of acres. With nearly forty of these I exchanged addresses, and many have since corresponded. Apparently intimate with none, save Mr. P.s' worthy propagator, he stood aloof from all others:—and, in keeping with his characteristic style, alludes to the gentlemen present as "the vulgar crowd." As to *sneers*, they must have been *at his own!* and the reply of 'budling' and 'cutling' was from *his own lips*, (!) in answer to a question I put him about 'rootling'!!

Mr. H. accuses me of being of an economical turn, because I condensed in a "half-sheet" circular what he has not yet, in all the pages he has written, been able to refute. Had he intimated to me at the time that the offer of $10 each, for a hundred penny rootlings was not liberal enough to one so fond of "gardening for profit," I would cheerfully have doubled the offer. 'Tis true that it does appear 'economical' to raise *hardy* rootlings for "a penny apiece," when it is estimated to cost ten times that to handle *tender* vines "under glass." On this score we plead guilty, and are reaping the fruits fit,—on the one hand by a 'random shot' from Mr. H.; on the other by liberal encouragement from an appreciative public.

Mr. H. mistakes my allusion to insects. He will find my opinion of "thrips" published in the *Country Gentleman* for March. He insists that I mean what I have expressly said I disbelieved.—In reference to the "sole cause" of paralyzing vines. He

is pleased at the idea that what he has said has depreciated "rootling stock." In the advertising columns of the *Monthly* for March, he will find the prices the same as in my circular of October,—that price varying with the variety.

Mr. H. has given four methods of propagation:—the *first*, In the close box or cellar where, he says, the eyes remain "without starting," by excluding the light:—in December he asserts this to be the only way. *Second*, (p. 107,) By inverting, "under glass," the cutting; *third*, In a hot-bed covered with boards "to exclude the light and heat;" and *fourth*, In the position where his roses are placed in a propagating house, where the light is not excluded.

Now, Mr. Editor, let me venture to say that neither Mr. H., nor any other propagator, can be successful in raising rootlings by either of these four methods as described by Mr. H., for the simple reason that the requisite conditions are wanting to secure the control of the grape bud in a *dormant state, while the roots are actively pushing.*

Having had much practical experience about the matter, and having witnessed the experience of many others, I have good reason to believe that which I affirm,—all that Mr. H. has said to the contrary notwithstanding. Mr. H. has failed to produce any himself. He tells us, personally, in December, that he raises vines by the ten thousand;—now, he tells us that he has been "scared off" by my "rootlings or something else," although offered the "munificent sum" of $1000 to keep in the track.

He simply gives us the ordinary method of propagating from cuttings,—failing completely to point to the record, as we have demanded, where a rootling was ever described prior to the date of our circular, last fall. One word of evidence from record, or a single sample of rootlings, before our own had been scattered abroad, might have verified some of his many assertions,—which, as yet, have nothing to back them,—and given him a position more enviable than the one in which he has placed himself by the "random shot" which he confesses to have discharged.

[Our readers must have made up their minds about the merits of this controversy, and the only reason we can give for passing this additional piece is, that it seems to be a kindness to the writer and will do our readers no harm. We suppose this will end the matter, and we may give our understanding of it. It was something like this, in the language of Trowbridge,—

"Darius Green
Made a flying machine—
And he said to himself, as he tinkered and planned,
'But I ain't going to show my hand
To nummies that never can understand
The fust idea that's big and grand.'
So he kept his secret from all the rest,
Safely buttoned within his vest."

He announced himself, however, as the discoverer of a new principle,—that of getting roots from a cutting before the eyes pushed. We considered Mr. Henderson perfectly justifiable in ridiculing any such assumption. Had he simply announced himself as a master of the art of applying this principle, we should have had nothing to say,—for the principle is a sound one, and Mr. Barnett raises first-class vines by the process; but, like "Darius Green," Mr. Barnett tried to "fly his machine," and the moral is now, as Darius found it,—

"—— Stick to your sphere;
Or if you insist, as you have the right,
On spreading your wings for the loftier flight
Take care how you 'light."—Ed.]

PEAR BLIGHT.

BY MR. SAMUEL FEAST, COCKYSVILLE, BALTIMORE COUNTY, MARYLAND.

Friend Meehan: In your answer to a correspondent on Fire Blight, in your April number, you state "that as the Pear blight often attacks large limbs, where the bark must be a quarter of an inch thick, it must take a pretty large bug to probe his proboscis through it; and if our correspondent be attentive, he may soon see him, and we will be obliged to him for one, when he gets one." I have been intimately acquainted with this bug in question, now forty-nine years, and having suffered severely from his depredations. I will endeavor to describe his mode of operation:—

On passing an amateur garden (in 1818) belonging to an old French gentleman, who had been a planter in St. Domingo, and had to fly at the time of the Revolution, I observed, hanging on his dwarf pear trees a horse-shoe on a branch near the body of the tree. He said it was to prevent the electricity from striking the limbs; at that time I could not see in what way.

In 1821 or '2, on a Thursday, the first week in June, the day was cloudy and sultry, with flashes of lightning frequent all through the day, they occurred all through the atmosphere, as the fire-fly is seen on warm nights. On passing over the pear trees, on the Sunday morning following, I observed the young leaves flagging on the upper branches. On examining the tree I found the bark black on

the trunk, about four feet from the ground, I cut off a branch and saved the variety. I afterwards ascertained that forty-six trees had been more or less injured; many of them killed entirely.

For the last four or five years the destruction has been so severe, that I despair for the future; many of my largest trees have been killed to the ground, both on the quince and standards,—some varieties more than others, Beurre d'Anjou, Glout Morceau, and Easter Beurre, are all gone; the rest of the varieties so much disfigured, they are out of all shape. I am not the only one. It is the general complaint. The Bartlett and Seckel have been less affected than any other. I find the trees more subject to be struck when under a high state of cultivation.

On pruning one of my small dwarf trees last week, I found the south side of the tree more affected than the north, and the south side of many of the limbs blackened. If I can possibly find conveyance, I will send you some of the branches, so that you may settle this blighty question.

But Ignorance is bliss. If all the communications that have been written on this, the Black Knot and the the fertility of the strawberry, could be placed in one line, they would nearly cross the Atlantic.

I never observed the effect of blight so visible as in the tree I alluded to. It appears as though the tree had passed quickly through a fire and not sufficient time allowed for the blaze to encircle the branches. Should I be able to forward the specimens to you, they will convince you that Electricity is the cause of blight. Some of the varieties of the cherry apparently are effected in the like manner.

[We have sheet lightning here in this vicinity every year, often as brilliant as the liveliest festival the fire-fly ever held, but it does not bring blight to our Pear trees. Sheet lightning and all other kinds of lightning have had the powers of lightning ever since the pear was introduced into the United States, and it is strange that only within the past quarter of a century or so, it should take such a peculiar spite against the Pear tree. Moreover why it should hate pear trees more than any other tree is also a mystery. Perhaps it may be like the little boy's answer to the question about the deluge: why the lambs should be destroyed and fishes saved, that we "don't know but so it was;" and we don't know why 'electricity' plays such pranks, 'but so it is.' Yet we must be pardoned for being so irreverent as to say, we want to see a little more of this electric bug before we pin him down in our entomological collection.

We have as yet heard no theo that will bear less objection than the parasite fungi theory. Peculiar conditions of the atmosphere, or injuries, or defective culture, will no doubt aid their development. Ed.]

FRUITS NECESSARILY LOCAL.

BY MR. D. W. ADAMS, WAWKON, IOWA.

The student of nature notices with never failing amazement and delight, the infinite variety and beauty of the vegetable life, with which the great Gardener has adorned our landscape, and not less is his pleasure, in observing the wonderful intricacy and effect with which it is distributed, and all in harmony, with the requirements of a very varied soil and climate.

On the sandy and arid plains of Colorado, he sees the short stiff grass grow in scattered tufts. On the moist rich meadows of Ohio it covers the ground with the softest of carpets. On Mount Monadnock the mosses cling to the storm-beaten granite and the stunted spruce rise but a few inches in height. In the great Dismal Swamp the mosses and vines revel in the moisture and sunshine, and boldly reach from tree top to tree top of the tallest forests. The Pine loves sand, the Beech seeks clay, while the Black Walnut sends down its yellow roots in delight through twenty feet of Black alluvium.

The winds may blow, the snows may drift, the mercury congeal, and they heed it not, while the fragrant Orange and majestic Palm, glorying in the full blaze of a tropical sun, wither and die at the slightest touch of frost. Such is nature's laws. Through an infinite variety of soil and climate it is ordained that variety and not monotony shall clothe the face of the earth; and for man to break this law, is not only impossible, but positively undesirable.

There is no exception in the case of fruits. I aver that there never was and never can be a fruit that shall be cosmopolitan.

We look back with derision and pity upon the alchymist who spent a life in the vain search for the Philosopher's stone. Yet a future generation will look back with similar feelings upon the Horticulturist of the present day, who squanders his life and talents in attempting to originate a fruit that shall be perfectly adapted to all locations. It even now seems self-evident that this result can never be attained until the constitutions of plants are amended or nature's laws are repealed. What would be our opinion of an Agriculturist who should offer a premium of $100 for a variety of corn that should be perfectly adapted to the entire corn growing region of the United States. What *should* be our opinion of a Horticulturist who offers the same for

a grape or raspberry that shall be best over the entire fruit-growing land. The fact is that those very peculiarities that make a fruit or grain perfect in one soil and climate, must necessarily *unfit* it for a very dissimilar one. In Massachusetts, the Baldwin apple is nearly perfect, in Kentucky nearly worthless, whilst on the bleak prairie of northern Iowa the wintry blasts cut it down like a fig. Rawle's Jannet is fine in Virginia, poor in Maine, and kills in Minnesota. Duchess of Oldenburg, that is little sought or esteemed south or east, holds high carnival amid the fiercest blasts of a northwestern winter, and in summer yields abundant fruit of surpassing beauty. The Concord grape at Iona Island is pronounced poor, in Missouri fine, in Georgia worthless. Delaware that on the rich, high dry prairies of northern Iowa is thrifty, healthy and fine, in Missouri and many other localities is denounced as dwarfish, unproductive and specially liable to mildew and loss of foliage.

Thus it is with our entire list of fruits, not one is,—and it is contrary to the laws of nature that one should be,—perfectly adapted to all locations. When we as horticulturists "accept the situation," "submit to these laws," abandon our lists for "general cultivation," and devote our energies to perfecting lists for "special locations," then will horticulture be on the high road to success. Then the sterile hills of chill New England (God bless her), the rich sunny alluvial plains of Louisiana, the hot sands of Carolina, the beautiful rolling prairies of Iowa, will each produce, in wonderful abundance and perfection, its chosen sorts,—and, altogether, our great country will furnish an amount and variety of fruits that will swell with national pride the heart of the American Horticulturist.

THE BEST DISTANCE TO PLANT STRAWBERRIES.

BY M. T.

Much has been said about the best way to make strawberry beds, but no decision has been made on which the novice can rely. There are as many found to advocate hill culture, as to grow them in beds; and as many to recommend cutting off all the runners, as to let them run altogether as they will.

There is no doubt that large growers who raise for market find their advantage in any of these methods, according to circumstances; and people infer, accordingly, that there can be no rule laid down to guide the amateur as to which is best for him to do in his small plot of garden ground. But, whatever may be best for him, who can work his large plantation by the plow,—or who, by a heavy investment of capital in strawberry growing, has at command, at the right moment, plenty of help to outrun the strawberry growth; I am quite sure there is another way which is much better for the amateur, and which will insure him enormous crops on a small piece of ground with very little labor or expense.

The Strawberry is a gregarious subject, and does not like an isolated life. It believes that in "union there is strength;" and it will bear a great deal better when it is moderately near a neighbor than when alone by itself. Why it is, or how it is, we do not know, nor is it of much consequence here to tell; but of that fact am very well assured my observations have not deceived me. I therefore put my strawberries four inches apart, in straight lines, and this is parallel with another straight line, twelve inches from the last—just wide enough to hoe between.

Thus I continue until my strawberry plantation is made up, with no beds or alleys between. Whatever runners come within these 12-inch lines are hoed out, just as if they were "any other" weeds. The crops I get from this system are entirely satisfactory,—and, strange to say, I really see very little difference in the productiveness of any one kind over the other, by this system,—except, perhaps, that Albany Seedling bears a little more than the others,—but very little, indeed, more than Triomphe de Gand, when grown in this way.

There is one point, as to the direction of these lines, worthy of remark—that is, that a bed will remain longer productive when planted on a gentle slope, with the rows running across, than any other way. It was sometime before I could get at the reason, but this is it:—

The Strawberry plant is really *an annual*. No part of it, now alive, will be alive next year, though apparently the same hill: for, as soon as the growing season comes, the plant pushes out three or four series of leaves from the crown, and a new set of fibres from the bases of these new leaves, and the stock below immediately dies, like an old Gladiolus bulb, exactly. The plant is thus elevated a quarter of an inch higher than it was before; and in the course of another year or two becomes considerably above the level of the ground, and suffers accordingly—very frequently gets winter-killed. But when across the slope, and set rather thick in the rows, the soil continually washes down and covers the elevated rootlets, and thus aids to maintain continuous fertility for some years.

I have said the old stalk dies away like a Gladiolus, but it does not, like that, so entirely disappear. It being ligneous, remains a dead stick; and any one who examines an old strawberry stool will find but a set of dried stalks, on the top of which living strawberry crowns are set. Those who never made the observation will find an examination interesting and instructive.

The Gardener's Monthly.

PHILADELPHIA, JUNE, 1867.

☞ All Communications for the Editor should be addressed, "Thomas Meehan, Germantown, Philadelphia," and Business Letters directed to "W. G. P. Brinckloe, Box Philadelphia."

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STRAWBERRIES IN POTS FOR FALL PLANTING.

It has often been spoken, to the reproach of Americans, that they are too impatient of delay: a "fast people," who would "have the world made in a day." We confess to sympathizing a little with this fast idea. Life is short, and if we can do in one day, what it takes two to do in Europe and do it as well, why not do it, and have the next day for something else?

But you say you admit the truth if we *do* do it as well, but this you deny. What you ask, do we gain by planting a large tree in preference to a small one? Many of them die, and you only have to begin and plant little ones, after losing a year instead of gaining one. But we may say in reply, many small trees die in transplanting as well as large ones; nay, more we think in proportion to the number planted, for there being more at stake in a large tree, better talent and skill, and more care is taken in the operation. Large trees moved with proper judgment, and by the proper hands, do quite as well as small ones.

Every one who knows the vicinity of Philadelphia knows this to be a fact, and it is clear to them that a large tree can be as "well done" in removal as a small one can be. In short whether we do or do not do a thing well, is simply to ask whether we do or do not accomplish our aim. A thing poorly done in the eye of an European, with his training and ideas, may be very well done to an American, who has other aims and purposes.

We know that it is unpopular to say anything in favor of large trees or strong plants. The feeling is so overwhelming in favor of "waiting for small trees to grow," that one runs the danger of being "written down an ass" by the horticultural dogberries of the day; but we are not accustomed to weigh what we shall say in the scale of popularity, when we find facts giving the better measure, for public opinion is like the private individual, who finds out in time to go where it is best served.

Allowing therefore our sympathy with the "fast," who, granting the pleasure of seeing things grow, are yet impatient to eat the fruit, we will now suggest that it is not at all necessary to wait two years to get a heavy crop of strawberries, if you are only willing to pay a little more for "big plants;" and bear in mind that this "paying a little" more is a very important part of the bargain. Sympathizing with those who want "large things," we have nothing in common with those who want them at the price of little things; and we really think it is this which makes nurserymen generally care not to interest themselves in the large tree business, as it brings much trouble, and little corresponding profit to them.

In regard to the strawberries, a prominent grower said to us last fall, he would not sell any strawberry runners in fall to plant early, as was recommended in all the Agricultural journals, because digging up the primary runner he destroyed the three, four, or a dozen which would follow; and he really gave for a dollar and half, not merely the one hundred plants, but the three, four or twelve hundred that would follow if it remained on his hands; and "he added," the people will pay me no more for them, "and if I attempt to charge it, they raise the mad dog cry of a dear place to go to buy." "If," he continued, "you public educators would but help the people to understand that good things cost money, we could help you, by supplying the good things they would want." And we "made note of this," and now proceed to advise nurserymen generally to keep on hand a supply of strawberries in pots, cautioning the public however that the idea "will cost money."

As soon as your first runners appear, get small 2-inch pots filled with rich earth, and bury them under the runners—burying the thread so as to bring the young germ under the surface of the soil in the pot—and pick off the runner that would start ahead of it. By the early part of September these small pots will be well filled with roots, when they can be taken up, and taken out of pots and sent to any part of the Union and planted; and, dry weather or wet, be set so as to produce a full crop the next year. Such plants should be worth forty or fifty dollars a thousand,—but we are quite sure there are thousands who would willingly pay the price near all our large cities, if they could only feel sure they would have a year's time by so doing.

Although it is well known that Strawberries must be set out early in fall in order to get any crop at all the next season, how very few are there who get them to grow, except regular small-fruit growers. The soil is loosely dug, and the plants have to be

set deep in this loose ground or they all dry up under a hot August and September sun,—and yet, if they are set too deep the hearts rot,—and in either case the plants die.

It is no use trying to teach this to customers. The poor hands, too often employed as "gardeners" to do the work, would as soon "think of flying" as of rolling a piece of ground to make it firm before putting out the sets; hence they will plant deep in spite of all things, and the plants cannot be saved. It is best to introduce something which even an ignoramus cannot kill. A strawberry plant with a ball is not likely to be set deep; hence, for this reason alone, besides the assurance of a good crop the next year, we would recommend to nurserymen the universal adoption of small pot strawberry plants for early fall planting.

WASTE OF FORCE IN VEGETATION.

We give under our "Domestic Intelligence," a paper by the Editor of this journal, copied from the *Proceedings of the Academy of Natural Sciences* on the consumption of force by plants in making their upward growth.

It was introduced there as a simple matter of natural science, but if found to be as true as the Author believes it to be, it will have a great bearing on many practical points in Horticulture which have never been clearly understood.

For instance, it has been long known to Agriculturists that rolling ground when dry was of great benefit. Some few of course there are who suppose that the rolling ground after a seed sowing is merely to make the ground "smooth," and who come in time to look on the matter as one of appearance only, and leave the land clotty and rough to save time: but the shrewd observer knows well that this clod crushing business is, in dollars and cents, profitable, but he can scarcely tell why. So the gardener, growing his rare pot plants, takes his soil as dry as he can, and then fears not to ram in as hard as a post, to his plants' profit; and there are special cases, as recently referred to by our observing correspondent Mr. Stough, where things growing in hard pressed soil astonish even those who are accustomed to profit by it. To be sure explanations are attempted, and we are told it is by "a thorough pulverization of the soil that rolling and pressing soil accomplishes this good," but this is no explanation of the principle, but a re-statement of the fact.

This paper on force we think does explain it. It shows that growth motion is a tax on what may be called the plants digestive powers which are necessarily limited, and the more force wasted in preparing for growth, the less growth can be made. Therefore if a plant have to push its roots through a hard clod, a greater amount of force must be expended to push through that clod than would be required to penetrate the numerous pores of a well pulverized soil, and with this increased expenditure of force in this direction, their is little left for absolute growth. In other words the easier a plant can push its roots through the soil, the more force it has left for other purposes.

Coming back to the grape vine, which suggested this paper, it is a remarkable fact that most of the grape growers of the old generation used to consider it essential to success to *cut off the tendrils of the* grape vine. *Why*, no one could tell. The father of the present writer, one of the best grape growers of the time, as the "Oak Hill Hamburgs," still celebrated though fifty or more years have passed over them testify, so taught the son; but with that irreverence which philosophy begets in one for the revelations of the past, when "no reason" can be given for them, the practice has been long abandoned by the son as of no account. And yet if the principles now enunciated be correct, there must be a great benefit in many cases from cutting off tendrils. If these tendrils exhaust the vital force in their vain efforts to discover something to cling to, cutting them off, or stopping that useless motion, must be of immense advantage.

Some of our best grape growers are yet of that class, which sticks to this practice. Mr. Lamont, gardener to Mr. Zug, at Pittsburg, whose excellent communications, our readers so often profit by, recently stated in this journal, that he considered cutting off the vine tendrils as one of the chief elements of his great success.

Mr. Meehan's theory will not account for every form of vine disease; and a vine may have every facility for a healthy use of its tendrils, and yet be diseased from other causes; but as *one* of the causes of weakened vitality in grape vines we have no doubt an inordinate amount of force spent in fruitless motion will from henceforth take a decided rank.

Another useful fact may be drawn from these principles, namely, that that system of trellising will probably be made advantageous to the vine which admit of the vine tendrils most easily, and readily getting something to cling to.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Polygonum, Smart or Snake Weed again.—"Plowman" sends us the following: I send you this 'crap' from the "Domestic Encyclopedia," in 5 vols., first American edition, published in the city of Philadelphia in the year 1804, by James Mease, M. D. (See vol. 4, pages 513, 310, and vol. 5, page 360, &c.):

"Polygonum, a genus of plants comprehending 33 species, ten of which are natives of Britain, the following are the principal, viz:—

Spotted Snake Weed, *Persicaria Polygonum.* This species is slightly acid and astringent. It is eaten by goats, sheep and horses, but refused by hogs and cows. Woolen cloth, previously dipped in a solution of alum, acquires a yellow color from a decoction of this plant. An effusion of the dried plant, or a decoction of the fresh plant, is a powerful promoter of urine, and very useful in the gravel.

Water Pepper, Lake Weed or Biting Snake Weed, (*Polygonum hydropiper,*) possesses a very acrid taste; valuable as a medicinal plant. It imparts a yellow color to wool. The Water Pepper is refused by *every species of cattle.*

[Encyclopedias give only the facts so far as known at the time of making the book. No doubt it was believed at that time that no cattle would eat *Polygonum hydropiper;* but our Baltimore correspondent's specimens were from this plant, and, as he assures us, the cattle eat it greedily, the Encyclopedia must, in that instance, be wrong.]

Variegated Norway Spruce—*W. B., Delaware, O.*—I have a Norway Spruce that has sported. Many of the young shoots are variegated with creamy white; the white is not distinct, but I think it will be very pretty. I think the color superior to *Retinospora obtusa aurea variegata.* Do you know if any variegated form of the Norway Spruce is in cultivation?

[These are not uncommon in seed beds,—but no effort seems to have been made to perpetuate them; probably those who have them not knowing how easily the Norway Spruce can be raised from layers. If your variegated branches are very pretty, we would recommend you to increase it this way.]

Disease on Pear Trees.—*Mr. Feast, Cockeysville, Md.*, sends us specimens of diseased Pear trees, with the following remarks: "The enclosed Pear branches I send you are more or less affected with electricity. It must have taken place after the wood had made its growth. Apparently, some varieties are more subject to it than others. Doyenne d'Angers, Glout Morceau and Easter Beurre were killed; Bartlett, Seckel, and some others, but few branches injured; others, again, the whole tree black to the ground, excepting three or four feet of the upper branches.

Its effects were never so visible as at this time. Many of the largest trees, both on Quince and Pear, I have had to cut entirely down. They are affected in various ways: some the tip ends of the branches, others the centre of the tree gone; whilst others on the side, are so much disfigured that it will be impossible ever to recover any shape, unless headed down entirely.

I am not the only one that has suffered: it is a general complaint around the city of Baltimore. The branches selected will show you in what way the injury takes place.

This is the first time I ever observed the blackness in the wood. Some varieties are black to the ground, like standing a blaze of fire."

[The specimens sent were not killed by what is called "fire blight," but mere samples of "winter killing," which results from a previously weakened vitality. In trees newly transplanted in the fall, especially such trees as Tulip tree, English Oak, and Weeping Willow, precisely similar injuries to the bark on the sunny side often occur; and it is very general on all trees which suffer from leaf blight in summer. The Lawton Blackberry, for instance, which is as hardy as any thing can be, even with an Arctic winter, where the leaves die away healthy in the fall, has the canes turn black, and die away just as these Pear shoots do, with quite light frost, when the Blackberry rust kills the leaves early,—and Pear seedlings which have had the leaf blight in summer die away just as these shoots have done. The remedy is to fight the leaf blight; and the best way to fight it is to keep the Pear orchards in well cultivated sod.]

A Pistillate Plum.—*J. H. C., Dyersburg, Tenn.*—I here send you some blooms of the Peach and Plum cross. I want you to examine them and see what they are deficient in.

[These were remarkable specimens of apparently Plum flowers, but without either *petals or stamens.* Nothing but a mass of open buds with pistils in

them. Loose in a letter, however, they were too dry to analyze critically; but we hope this curiosity will be preserved for a better examination.)

Kansas Prospects.—A *correspondent* at *Manhattan, Riley Co., Kansas*, says: I have not seen a Cherry, Pear, Plum (except wild ones), or Quince, for 11 years. I have had hard work to get started, but now have them all growing. If you knew the labor we had in building up this country the past 11 years, you would be astonished.

The "iron horse" is now *snorting* 90 miles further west than where I used to kill fat heifer calfs of the *Bison Americana*. The lots we were able to buy in Manhattan for $5 are now worth $200. I won't sell mine till they double.

Then there were 4 little 'shanties,' that the wind has since blown down. We had no merchants, mills, factories, paper mills; no 2 printing offices, no dams to drive machinery, no railroad bridge, no bridge building across the Blue, and (no) *another* bridge across the Kansas; no twenty stores, mechanic's shops, &c. Some have lots to sell for $1500.

United States Experimental Farm. A counterpart to the Experimental Garden has been established at Washington. It consists, at present, of about 25 acres. It has been placed in charge of Colonel James Gleason, well known in Philadelphia, before the war, as a popular Landscape Gardener. Mr. G. commenced his career as a private gardener here, before commencing business on his own account, and was always successful in whatever he undertook to do. His promotion in the army was well earned. Men who know how to make their own business successful are just the ones for these public positions, instead of the unfortunates who are placed in office as "acts of charity."

Large Crop of Potatoes.—Mr. Editor: Some of your correspondents have been *trying* to tell some large potato stories, but a friend of mine (Mr. E. Graves, of Ashfield, Mass.). rather eclipsed them. From *one peck* of Early Goodrich he raised, last season, thirty-five bushels.

Hammonton, N. J. Wm. F. Bassett.

Name of Plant.—*W. F. B., Hammonton, N. J.*—Your plant is *Helonias bullata*, spread generally through New Jersey, though not common in any locality. As you remark, it is well worthy of introduction into our hardy herbaceous borders.]

"Gimcracks."—We do not know any other word to express the idea of people who are continually "trying to do something." Our English friends are continually in this state of excitement. For many years they have been in the habit of adopting Latin names of plants as English ones, giving them even English pronunciations, with the English rules of rendering them plural. Gladiolus, all at once they discovered they had'nt, or ought'nt to have, adopted as an English word,—that it should still be a Latin word, and lo! all the little imitators all over the world talk about their *Gladioli*.

We pointed out, at the time, a capital chance for some other one to make a name for himself,—that Anemōne, as it has been anglicized, is wrong,—as, classically, it should be anemōne; but, no doubt, some great man will yet arise to make the great discovery.

The latest whim of the lingo-ists is, that we have been all wrong in saying Orchidaceæ,—they say it should be Orchiaceæ; and another of them insists that, as *arbor* and *planta* are feminine, the adjective terminations of all tree and plant names should be feminine. He thinks, therefore, we should change all our plant names at once, and commences by making Taxodium distichum, Taxodium *disticha*. One time it was believed that "custom gave laws to language," but not now it seems.

Seedling Verbenas from *Mr. Purple, Columbia, Pa.*—Some of these have crimson, white, and white and crimson on the same heads of flowers. This is characte istic of the new Sardinian race of Verbenas. Mr. Purple's are very fine varieties of this interesting strain.

Books, Catalogues, &c.

Lippincott's Vapor Index.—In a recent number we gave a paper on "the Psychrometer in Furnace-heated rooms, &c.," in which reference was made to an apparatus for determining the quantity of moisture indicated by the observation of that instrument. We however neglected to notice the "Vapor Index" or to state where it may be found. We will make amends as follows:

The apparatus denominated "Lippincott's Vapor Index" is a device consisting of a rotary card pierced with numerous aperatures, and affixed at its axis to another card abounding in numbers. By turning the card and forming certain conjunctions according to the simple directions accompanying, the least skilled can readily learn the measure of

humidity in the air after observing the "wet and dry bulb thermometer" or Psychrometer. A description of the latter named instrument: Remarks on its practical value, Directions for determining the the number of grains of vapor in a cubic foot of air, and for calculating the Dew point, from an appendix on the back of the card.

The "Vapor Index" is certainly neat, ingenious and simple, and makes very a elegant and useful piece of apparatus for the meteorologist, or any one who is not a meteorologist, who would learn the condition of the air around him, or in his dwelling, &c., and adjust the humidity when controllable as may best conserve his health or comfort.

"Lippincott's Vapor Index" has received high commendation from Professors Henry and Frazer, and Louis Blodget, author of the "Climatology of the United States." The latter gentleman testifies as follows, and we append his opinion that wider publicity may be given to, and the attention of Teachers and Directors of our Public Schools may be drawn to the importance of introducing the Psychrometer, and "Vapor Index" into our public schools, now so indifferently warmed, ventilated and supplied with air containing the proper proportion of humidity:

"I have found your "Vapor Index" or Psychrometric Calculator, a very convenient and accurate instrument for giving the results of observations of the wet bulb thermometer. It would be a great advantage to introduce it into schools of every grade, since it gives at once a result of observation which the least skilled can understand and appreciate."

One difficulty in securing accurate hygrometric observations heretofore has been that the observer could not at once convert his observations into a result intelligible to himself. But by aid of this simple, but *admirable* scale, any one can at once see what his reading of the wet bulb means, and he will be much more likely to observe correctly.

The Vapor Index is for sale by James W. Queen & Co., 924 Chestnut St., Philadelphia, and by J. S. Lippincott, Haddonfield, N. J.

Beet Root Sugar, and Cultivation of the Beet. By E. B. Grant. Boston: Lee & Sheppard.

The object of this book is to call attention to the importance of Beet sugar production in the old world, and to demonstrate the advantage and feasibility of establishing it in the United States, and it proceeds to give the history of Beet Sugar; a comparison of the relative advantages in America and Europe for the production, and practical rules for culture and sugar making.

The author thinks that the abolition of slavery in cane growing countries will elevate the price of labor and make sugar always higher than it has been, and hence beet sugar must become a very profitable northern crop; but the cheap labor of slavery has always been comparatively rude and shiftless, and with the labor made more intelligent the production will gain by intelligence what it has lost before,—that has been the tendency of all things. When the war made labor scarce in Agricultural districts of the West, machinery was invented to take the place of man, but yet there is no reason why the cultivation of the Beet should not successfully compete with cane for all. There is much to encourage the Beet grower in the sorghum experiments, for notwithstanding the great care required to keep the best saccharine forms of sorghum pure or up to the highest degree of perfection, it has been found in many places a very profitable crop to grow.

This book will be found a valuable aid to Beet sugar enterprize. It presents facts, intelligently written, and concisely put together, giving a large amount of very useful matter in a comparatively small space.

Catalogue of the Library of the Mass. Horticultural Society.

Shows a very valuable collection of Horticultural books.

Catalogue of Wm. Bull, London, England.

Mr. Bull deals only in *new* things. This list for 1867 contains 70 pages, and is a good guide to the cultivator who would keep "up with the times."

New and Rare Plants.

Production of New Pansies.—Either there is a falling off in the production of new Pansies, or else the raising of them is confined to certain localities from which they do not emerge as candidates for public favor previous to being sent out. The varieties of the Fancy Pansy increase much more rapidly, seeing that Messrs. Downie, Laird & Laing, announce some 12 or more new varieties. A batch is also announced by Messrs. F. & A. Smith, apparently of continental origin, as the well-known name of Demay is attached to most of the varieties. There is no doubt but that, in point of quality of flower, the English raisers of the Fancy Pansy have outstripped the French raisers, judging from what

has been seen of the French flowers during the past few years. Flowers that are fantastically, rather than harmoniously and regularly marked, seem to compose the bulk of foreign introductions; they are also generally smaller in size, and not so stout in the build. Herein the English raisers excel; flowers of large size, combined with great substance and rapidly improving form, and having also combined with somewhat curious and eccentric marking, a certain harmony of colors that forms a distinguishing mark of their improvement.—*Gard. Chronicle.*

Centaurea Gymnocarpa.—What an elegant plant this is for a variety of purposes, both in doors and out! We have employed it out of doors rather extensively this season, and it has a charming appearance; it is not so white as ragusina, but it is far more graceful; so one quality is a set off against the other. Gymnocarpa is easily managed, and a stock of it can be secured much easier than that of ragusina. It strikes freely, and may also be raised from seed; it is a most useful plant for decorative purposes, especially when grown as standards in smallish-sized pots. In this state I have seen it as as white as the other kind.—John Edlington, in *Cottage Gardener.*

Arundo conspicua.—This splendid ornamental grass resembles in style of growth and bloom the well-known Pampas Grass, but flowering nearly three months earlier than that variety, and lasting longer in beauty. When this variety is more known, the Pampas Grass will doubtless be but little cultivated.

Aubrietia græca.—In size of flower and depth of color this variety is superior to any yet introduced, and is a very desirable plant for borders or beds in early spring. It received a first-class Certificate at the Spring Exhibition of the Royal Botanic Society, 1865.

Anthurium reflexum.—Orontiaceæ. A stemless stove perennial, with thick green, elongate, heart-shaped leaves, having semiterete petioles, and short recurved peduncles bearing ovate spathes about as long as the thick oblong spadix. The leaves are about a foot in length. Native of tropical America. Flowered in the St. Petersburgh Botanic Garden, where it was received from the Garden of the Paris Museum.—*Gartenflora.*

Bowiea volubilis.—Liliaceæ. A botanical curiosity of much interest, but of little beauty. It has a fleshy leafless bulb and a climbing stem, the lower branches of which are dichotomously divided into numerous terete horn-like intertwisted branchlets, and the upper parts bear a few green Drimia-like flowers. Native of South Africa. Flowered at Kew.—*Botanical Magazine.*

Aquilegia pyrenaica.—Ranunculaceæ. This beautiful dwarf herbaceous plant was cultivated some 50 years ago, but has probably been since lost. It resembles A. alpina, but is smaller, with fewer flowers, these being comparatively large, and of a paler lavender blue. A charming dwarf hardy perennial. Native of the Pyrenees. Flowered by Messrs. Backhouse & Son.—*Floral Magazine*

Aucuba japonica grandidentata maculata.—Cornaceæ. A handsome variety of the Aucuba, with the leaves narrowish and deeply-toothed, and the surface very heavily blotched with creamy white. It is a berry-bearing form. Cultivated in the Dutch gardens.—*Neerl. Plant.*

Corysanthes picta.—Orchidaceæ. A beautiful terrestrial stove Orchid, 3 or 4 inches high, with a solitary cordate ovate reticulated leaf, and a nearly sessile biblate flower of curious aspect, the upper and hinder portion fornicato-adscendent, richly stained with deep purple and yellow, the lower lip divided into four long subulate segments, and a similar body, described as a bract, seated at the base of the short ovary. It is the Calcearia picta, *Blume.* Native of Java. Flowered in the Leyden Garden.—*Neerl. Plant.*

Desmodium penduliflorum.—Leguminosæ. A hardy frutescent plant, growing 5 to 6 feet high, with long pendulous branches, furnished with trifoliate leaves having oblong or oblong-lanceolate leaflets, and producing from their axils, all over the plant, longish slender drooping racemes of small pendant purple flowers. It is remarkable for its gracefulness and abundant blossoming. Supposed to be a native of Japan, having been introduced by Siebold from Yedo. Flowered in the Dutch garden.—*Neerl. Plant.*

Ficus Suringarii.—Moraceæ. A handsome-leaved stove plant, of stout erect habit, with broadly cordate acuminate stalked membranaceousdentato-serrate leaves, the five main ribs of which are of a deep rosy red, the same color also feathering out

on each side into the primary veins, and forming a band around the stem at every node. Native of Amboyna. Cultivated in the Leyden Garden.—*Neerl. Plant.*

Pavetta Hookeri.—Cinchonaceæ. This is the Ixora odorata of Sir W. Hooker (*Bot. Mag.*, t. 4191), and is considered by Prof. Ode ans as inadmissable to the genus Ixora.—*Neerl. Plant.*

Platycodon autumnalis.—Campanulaceæ. Of this beautiful hardy perennial, called by Dr. Lindley P. sinensis and P. grandiflorus, Dr. Oudemans figures in the plate quoted, four distinct varieties, namely, the single and the double (hose-in-hose) form of each color, blue and white. They are all equally worthy of cultivation in every garden.—*Neerl Plant.*

Domestic Intelligence.

Discussions on Cherries, at the St. Louis Hort. Society.—Bauman's May—Dunlap moved it to be stricken from the list for Central Illinois. It is tender and useless for us. It was stricken out.

Belle Magnifique.—Dunlap moved to strike it out for market in Central Illinois. It is tender.

Phœnix.—It is a sure and reliable bearer and hardy tree—the best for Central Illinois.

Dunlap.—I will give Mr. Phœnix $25 for every bushel he will bring me of this fruit grown in Central Illinois.

It was stricken from the list for market purposes, and remains recomended for family use.

Judge Brown of Villa Ridge, moved that all the cherries recommended for Southern Illinois be struck from the list, except the Early May.

This was opposed by Mr. Flagg and Mr. Colman. The May Duke and Black Tartarian do well in the vicinity of Alton, which is in Southern Illinois. The cherry does well on our hill lands. The Early Richmond is incomparable as a market fruit. But there are other cherries we cannot do without.

Dunlap.—Except on the loose soil, the cherry does not do well, except two or three varieties. The Early May and the large English Morello do well in Central Illinois.

Flagg.—Mr. Mudd says he has Black Tartarian cherry near St. Louis that have produced a bushel to the tree the past season.

Brown.—Trees planted with us generally die before they get ready to bear. They blossom finely, but there is no fruit if they do reach the bearing age.

Mudd.—I have sixteen varieties about my house. I have Black Tartarian planted five years ago that bore me a bushel of cherries each the past season. Orchard is not on as good soil as the cherry orchards at Alton. I have lost but four or five trees from it.

Colman—Moved to amend by striking out all except the Black Tartarian, May Duke and Early May.

The amendment was carried.

Judge Brown moved to add the large English Morello to the list for Southern Illinois. Carried.

Dunlap.—Moved to change the name of the cherry known as Kentish and Early Richmond to Early May. He asked Dr. Warder how it would appear in the new fruit book. Dr. Warder replied it would appear as Early May.

Voted to call it Early May.

It was moved to add Large English Morello to the list for the North. It is an excellent cherry for cooking, is a month later than the Early May. It was added.

Ellsworth.—Moved that the May Duke be struck from the list for Northern Illinois. It does not produce well at all.

Mr. Edwards of Bureau county.—It bears well with me once in three or four years, and I should hate to see it struck from the list for family use.

Dr. Warder.—It bears well on the Morello stock. Not on the Mazzard.

Minier.—It does well with us on the Morello stock. We cannot do without it.

It was voted to strike it from the list.

On the Consumption of Force by Plants in overcoming Gravitation.—Every one interested in Horticulture knows how uncertain is the successful cultivation of the grape in the United States. The vines usually flourish well for a few years, but in most instances become the prey of numerous diseases before they attain any very great age.

In remarkable contrast with this general failure is the fact that grape vines growing over trees are generally healthy and fruitful to a remarkable extent. Branches from unhealthy vines on trellises, when they can get to ramble over the twiggy branches of a neighboring tree, resume the health and vigor lost by the parent or main vine.

These facts have had numerous observers, and are generally admitted. They have been frequently discussed in Horticultural journals; but every theory hitherto brought forward has been refuted. For

instance, it has been suggested that the partial shade afforded by the tree benefited the grape vine; but it is as perfect when growing over low bushes, on hot banks, exposed to hot and dry temperatures, as when luxuriating among the shady branches of the tallest trees. Again, it has been suggested that as the vine is supposed to like a dry soil the roots of the tree tended to absorb superfluous moisture, and thus furnished the best conditions for the vine roots; but healthy vines are found on trees in impassable swamps; besides, the cases of branches from trellises before alluded to answer this supposition. Some have thought that as the foreign vine, growing under glass, thrives there so well principaly on account of humid atmosphere, the evaporation from the trees' foliage might benefit the vine growing over it; but it has been further observed that they grow as well over dead trees as over living ones; and so on, in like manner, every theory has been refuted, and the true reason unexplained.

I think Mr. Darwin's discovery of tendril motion will afford the key to this phenomenon, and enable us to form a new theory as to the origin and employment of force in vegetable growth.

Mr. Darwin has shown that the tendrils of plants are in continuous motion for a long time until they find something to cling to, when motion at once ceases. Motion is an attribute of vital force; and vital force, whatever be its origin, must be sustained by nutrition.

There are two forms of motion. The one we call growth, which is the motion of the cell individualy, the other, in animals, we call muscular motion, is the movement of the cells collectively. This tendril motion, unamed because until lately unknown, is analogous to animal muscular motion, in its being a collective movement of the parts.

In animals we know that nutrition will only supply a given amount of force, and that if muscular motion receives an undue proportion of this force, growth (cell motion) suffers. In common language, the over-run horse gains no flesh. On the other hand, the disuse of muscular power fattens the animal. If the same division of motion exists in plants, and Mr. Darwin's paper shows it does, it necessarily follows that if one form gets more than its due share, the healthful balance is destroyed—in other words, the force necessary for excessive tendril motion in the grape vine exhausts the nutritive powers of the plant to supply; growth suffers, and disease ensues.

To apply this principle to the case of unsuccessful grape culture, we find in no system of grape management is any provision made for arresting tendril motion,—but on the tree thousands of little twigs invite the tendrils at every turn. No motion is expended except for what we might almost term healthful exercise,—the balance is used in growth.

Observation on many species of climbing vines under similar circumstances confirms these views. The growth and general healthfulness of every kind of vine, is in exact proportion to the climbing facilities afforded it. The garden pea will furnish a ready means of testing this proposition. It will be found that difference in vigor, general healthfulnes, and longevity, is strikingly in favor of those grown on twiggy branches. Peas unstaked grow weakly, bear early and sparing, and die young. Honeysuckles ramble to great heights and have large luxuriant foliage on fine wire trellises, but when dangling to one straight stick they grow very little indeed. The most striking instance that came under my observation was in some *Wistaria sinensis* which had been trained to form self-supporting dwarf trees. The branches would only grow two or three feet in a season, but a few of the shoots in time bending over and reaching the ground, where they found a natural support, would grow thirty feet during a single season. The observations in this way were so uniform, and the materials being everywhere, any one can verify this without it being necessary for me to particularize further instances.

Every effort of nature is but an endeavor to accomplish an object. The history of a plant's life is a struggle with gravitation. The purpose of that struggle is with the Author of its existence, but its immediate object is to elevate itself from the earth. The force required for this is very great. In its young days, however, it goes on with vigor,—taking no thought, as it were, of to-morrow,—but, as it grows of older, it becomes bowed down by the weight of its own accumulations; gravity tells on its wide-spreading branches, reminding it of its growing weakness. It then prepares itself for its final dissolution by producing fruit, which, fully accomplished, the struggle with gravitation ceases, and dust to dust returns.

The whole of this enormous motive force must, as we have seen, be derived from nutrition,—and the proper proportion due to each form of motion must be provided and paid to it, or deranged action be the inevitable consequence.—Thomas Meehan, in *Proceedings of the Academy of Natural Sciences, of Philadelphia.*

Heating Power of Evergreens.—The cold weather that we have been having, makes us close observers of every means which we may bring to

our assistance, in the bleak prairie region, for the purpose of contributing to our comfort, and to economise in the use of fuel.

In your issue of January 5th there was a statement that a gentleman in Western New York, who had planted a great many Evergreens about his homestead a few years ago, so that his neighbors laughed at his "cedar swamp," now finds that he saves nearly half the fuel that was formerly required, and this because of the shelter afforded by the trees.

In the "Horticultural Annual," which has recently made its appearance from the press of Orange Judd & Co., New York, among many articles of value, there is one upon some of the "Rarer Evergreens that have Proved Valuable." It is written by Thomas Meehan, the well known tree propagator, and the instructive Editor of the *Gardener's Monthly*. Before commencing his description, Mr. Meehan expresses his views upon the heat-producing powers of Evergreens, and other trees in the following terms:

"We all know that a stove throws out heat by reason of the fuel it consumes, and that, in like manner, the food taken by an animal, is as so much fuel to a stove—the source from which animal heat is derived, and which is given off to the surrounding atmosphere, precisely as heat is given off by the stove; but it is not so well know that trees give off heat in the same way; they feed, their food is decomposed, and, during decomposition, heat is generated, and the surplus is given off to the atmosphere.

"If any one will examine a tree, a few hours after a snow-storm, he will find that the snow, for perhaps a quarter of an inch from the tree, has been thawed away, more or less, according to the severity of the cold; this is owing to the waste heat from the tree. If he plant a hyacinth four inches or more beneath the surface of the earth, in November, and it becomes immediately frozen in, and stays frozen solid until March, yet, when it shall then be examined, it will be found that by means of its internal heat, the bud has thawed itself through the frozen soil to the surface of the earth.

"These facts show the power of plants to generate heat, and the more trees there are on a property, the warmer the locality becomes. Evergreens, besides possessing this heat-dispensing property, have the additional merit of keeping in check cold winds from other quarters, thus filling, as it were, the two-fold office of stove and blanket."

These statements are worthy of our serious consideration, and while the climate is changing for the worse, in the older states, since the clearing off of the timber over large tracts, we, in the prairie region, may anticipate a corresponding melioration of climate, both as to temperature and moisture, just in proportion to the increase of screens and timber belts, whether these be of native growth, or the result of judicious planting by our intelligent farmers.—W.

[We extract the above, by one of the Editors of the *Prairie Farmer*, not for the purpose of displaying the compliment to the editor of this journal,—but that additional attention may be given to what we consider an important fact,—one which it is now sometime since we first referred to in our journal. —Ed. *G. M.*]

Wood Burning without actual contact with Fire.—The *Gardener's Monthly* has, for many years past, endeavored to educate the public to the fact that greenhouses, which often "mysteriously" take fire, do so from the slow charring process of heat on wood.

The following paragraph, from a learned magazine, shows that "Scientific" writers are coming to the same conclusion:—

"Scientific writers inform us that wood, when continually exposed to a very moderate heat, such as that of steam and hot-water pipes, will, in a space of time varying from eight to ten years, become so inflammable that it will take fire at a temperature very little over that of boiling water. The wood undergoes a slow process of charring, and it is said only awaits the admission of air (which it gets by shrinking and cracking) to burst out into flame."

Sporting of Fruits.—On a tree, bearing Pound Sweet apples, growing in the garden of C. C. Hamilton, M.D., in Cornwallis, three apples formed and grew on a small twig the size of a goose quill and eight inches long. Two of these apples had all the characteristics of the Pound Sweet, in color, size, shape and other peculiarities; while the middle one was smaller, perfectly russeted, and different in shape, more ribbed at the blossom end, and having a shorter stem. The twig with its three apples was exhibited at Somerset, and recently the fruit was tested by the Council of the Fruit Growers' Association, when it was found that the apples differed also in their qualities. The two apples appearing to be Pound Sweets had all their true characteristics, whereas the middle one, which

was russeted, was smaller, less fine in flesh, with a finer oily grain, inclined to wilt, and with a yellow cast of flesh. When tested, the flavor seemed somewhat different, being, by some, considered slightly acid.

Nothing was done to bring about this singular phenomenon; and the fact of the three apples growing upon the same twig, and differing as they did, was not known to the proprietor until about the 1st of October.

It is for fruit growers to speculate upon this subject, and assign if they can the true cause of this singular "apple freak;" there is not a tree bearing russeted apples within ten rods of where these apples grew.—*Canada Paper.*

Growth of Trees.—A few days since, we had an opportunity to measure a number of trees that were set in rows in the spring of 1859; the plants were three years old and about two feet high when set out, and have had in all, eleven seasons growth; they were intended to be grown and sold for ornamental trees, and to give them a good form, were set four feet apart each way, which is at the rate of 2,500 trees to the acre; they are quite uniform in size, ranging from five to six inches in diameter, at the butt are three to four inches ten feet above ground, and eighteen to twenty feet high; three seasons more of growth will make them of large size for fence posts, and from appearance, will make not less than two thousand to the acre, on throwing out one-fifth for trees of under size; at this age, one-half should be cut out to make more room for the remainder.—*Iowa Homestead.*

The Hamilton Nurseries, in Canada.—Hamilton enjoys a well-earned reputation for eminence and progress in all departments of horticulture, and possessing many advantages as to location, exposure, climate and protection, would be culpable indeed if she did not avail herself of them. Ample opportunity for doing so is afforded by the well-kept nurseries in and near the city, where practical fruit growers and amateur gardeners can both inspect samples in the specimen grounds, and obtain facsimiles for transfer to their own domains. Hamilton is also a good point for supplying a large section of country with trees and plants, from the ready facility of shipment and transportation by water and rail which it offers. Having within a few days paid a visit to the Hamilton nurseries, a short account of them may not be unacceptable to our readers.

Messrs. J. A. Bruce & Co. have an extensive nursery and seed establishment, comprising a large store and warehouse on King Street; nursery grounds, greenhouses, and graperies on Ferguson Avenue; and a seed farm of thirty-five acres on Main Street East, just outside the city limits. The store and warehouse are stocked with a large and varied assortment of seeds; garden implements of every description; and the standard works on Agriculture, Horticulture and Rural Economy.

The seed business has grown from a small beginning to almost mammoth proportions, and it is very gratifying to find that in the increased and constantly augmenting demand for certain seeds, their is conclusive evidence afforded of steady agricultural improvement. Especially is this the case with regard to root crops. In 1851, fifty-six pounds of carrot seed sufficed to answer all calls; this year the Messrs. Bruce expect to sell at least 5,000 pound. —*Canada Farmer.*

Foreign Intelligence.

Fuchsias.—Strike short jointed cuttings in July; remove to the front shelf, and pot off in September, replacing them near the glass during the autumn; keep rather dry in winter, and re-pot in spring into larger pots until June, pinching back ill-placed shoots, and picking off flowers until that time; the pyramidal form of training is best, therefore encourage the growth of the main stem, and regulate the growth of the side shoots by pinching back the strongest, that the weaker may compete with them successfully to form a uniform plant. By the end of August they will probably have done flowering, when they may be set out of doors for a month, but must not be left to get frozen; they may then be stored away at the back of the greenhouse, or even in an attic, if secure from frost, and affording them a moderate amount of light. The following February they may have their side shoots pruned back to within a joint or two of the main stem, and be taken out of their pots in March. Some of the old soil to be shaken from their roots, the latter slightly pruned, and then be re-potted in clean pots, taken care to work the new soil amongst their roots with a pointed stick.—*Gardener's Weekly.*

Window Plants.—Three principal things requiring consideration are air, light, and moisture.

Plants kept in windows naturally extend their branches and leaves to the light, and they thereby become one-sized; and it is wrong to endeavor to make them otherwise by frequently turning them, as the plants will as constantly turn their growth to

follow the light, which not only weakens them, but spoils their appearance. As for plants receiving no perpendicular light, it is more natural to spread them out, forming one good face or tier of healthy foliage to the window; for well-balanced heads, under such circumstances, are almost out of the question. Place them as near the glass as possible; of course windows having a southern aspect possess the greatest advantage.

Judicious watering of plants in rooms is, perhaps, the most important feature in their management, as it is, unfortunately, in most cases, ill understood, being too often given mechanically, as it were, at stated times, whether required by the plants or not; and by a too eager desire for their welfare, they are frequently surfeited to death with water, which is generally termed killing them with kindness. In the summer this cannot be easily accomplished, unless the plants are allowed to stand in saucers constantly filled with water, which by overloading them with juices, will soon engender sickly, soft growths, unsuited for the production of flowers or healthy foliage. The best and only general rules which can be adopted are, in *winter* keep plants not then growing fast rather dry; in *spring* increase the quantity with their activity and the sun's powers, keeping them in a medium state of moisture; in *summer* water daily; and in *autumn* decrease with the length of the day and the returning slow growth of the plants until the dry state of winter is again reached.

All this resolves in the following:—Plants, when growing fast, may have free supplies of water, which must be lessened as their growth approaches maturity, and cease, or nearly so, when that is attained, until the return of their growing season. As regards *air*, similar rules to those given for watering may be followed. In *winter*, when the plants are not growing, large supplies of air are not so important, enough being usually given by the room door. As *spring* advances, increase the quantity, carefully guarding against the cold of mornings and evenings, or cutting winds; and if the plants are placed out in the middle of fine days, take care to bring them in before the chill of evening comes on. After the first or second week in May, they may be set outside for the summer; and towards the end of September, or as soon as heavy cold rains occur, they should be placed again in their quarters for the winter, setting out of doors when fine, or supplying them with plenty of air by the window, until the cold weather, and decrease of moisture at their roots, bring them to a state of comparative rest. The leaves of plants act as lungs, by which they breathe; if they become dirty, their respiration is impeded, therefore an occasional careful sponging will be useful to them.

Plants with soft, hairy leaves should be sponged with caution, as the chill occasioned thereby sometimes does them an injury; but plants with hard, glossy leaves may be frequently sponged without risk. In spring and summer allow them the full benefit of genial showers, which will do them more good than any artificial watering. It should hardly be necessary to mention the removal of decaying leaves and flowers; the latter are exhausting as well as unsightly.—*London Gardeners' Weekly.*

Best Fuchsias.—It appears this tribe has reached the limit of improvement, as very old ones get the premiums at the best London exhibitions. Following is the list of the 12 best at last summers show:—

Mr. Brockwell, gardener to Mrs. Henry, Edmonton, put up six large specimen fuchsias of perfect pyramidal outline, dense, leafy, flowery—models in fact for fuchsia growers of all grades. They were Wiltshire Lass, Madame Cornelissen, Conspicua, Sir Colin Campbell, and Sensation. Mr. Weston, gardener to D. Martineau, Esq., Clapham Park, had half a dozen smaller plants in equally perfect finish, and especially noticeable for their free graceful fountain-like outlines, the lower branches falling below the rim of the pot, and almost concealing it. Mr. Weston thoroughly understands the importance of grace in the character of the fuchsia. The varieties were Wiltshire Lass, Conqueror, Reine Blanche, Minnie Banks, Conspicua, Lord of the Isles. Mr. Filee, gardener to J. Strutter, Esq., Clapman Park, had Rose of Castile, La Crinoline, Souvenir de Chiswick, Fair Oriana, Annie, Madame Cornelissen.

Death of Mr. Skinner.—Horticulturists will feel very great regret to learn of the sudden death of Mr. George Ure Skinner. He left England last December by the West India Mail Packet to go to Guatemala, in Central America, where he was a partner in the house of Klee, Skinner & Co., he being about to retire from business and settle in England. He had only got as far as Panama when he was seized with yellow fever, and after a very short illness, died on the 9th Jan., at Aspinwall. It is as a devoted lover of plants (especially Orchids) and Natural History generally that Mr. Skinner has been so remarkable. He was of a most genial, kindly disposition, ever liberal and charitable, so that his loss will be felt most keenly by his friends.

THE TALLOW TREE OF CHINA, which gives rise to a vast trade in the northern parts of that empire, has been introduced into India. It grows with great luxuriance in the Dhoons and in the Kohistan of the North-Western Provinces and the Punjab, and there are now tens of thousands of trees in the government plantations of Kowlaghir, Hawul Baugh, and Ayar Tolie, from which tons of seeds are available for distribution. Dr. Jameson prepared from the seeds 100 pounds of tallow, and forwarded 50 pounds to the Punjab railway, in order to have its properties as a lubricator for railway machinery tested. For burning the tallow is excellent; it gives a clear, bright, inodorous flame, and is without smoke. The tree fruits abundantly both in the Dhoons and plains, and grows with great rapidity, many trees raised from seeds introduced eight years ago being now six feet in circumference and three feet from the ground. The timber is white and close grained, and well-fitted for printing-blocks. The leaves too are valuable as a dye.—*Exchange.*

TRITELEJA.—A genus of three-piece lilies, from America, the best of which is *T. uniflora*, which presents a most graceful and pleasing picture when in flower. It is of small growth, and should be planted in clumps of not less than a dozen bulbs each near the edge of a dry sandy bed or border. The flowers are about as large as a filbert nut, delicate blue and white, emitting a pleasant odor (though the leaves have the odor of garlic when bruised), and the plant is so nearly hardy that in ordinary winters it will not need protection. There are several other species with yellow, white, and dark blue flowers, but I only wish to press upon the attention of the reader the one named above, as that is good beyond dispute, and should be found in every private garden where spring flowers are valued. —*Gardeners' Weekly.*

HYBRID PALMS.—Not the least singular among the hitherto ascertained results of crossing, using the term here in its widest sense, are the antipathies and sympathies, as Mr. Henry terms them, which plants manifest. Of the one, the case of the hybrid Palm obtained between Chamærops humilis arborscens and Phœnix dactylifera is one of the most remarkable on record.—*Gard. Chronicle.*

BEST BEDDING GERANIUMS.—Many English writers seem to believe none of the newer Geraniums beat Cybister as a first-class variety for bedding purposes.

HONORS TO SCIENCE.—Mr. Baker the great Nile explorer, has been titled by the Queen for his scientific services. He is now Sir Samuel Baker

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GLAZING WITHOUT TOP PUTTY.—It will interest our readers to notice by the following from the *Gardeners' Chronicle* the progress of American ideas in England. "When lately with Mr. Barnes, in his nursery in Southampton Street, Camberwell, I had an opportunity of examining some of his houses that are glazed without any top putty, so to speak, and felt convinced of the soundness of the practice. Instead of putting any putty over the glass, the pane is simply pressed down into the under bed of the putty; that squeezes up, is cleaned off quite level with the pane, none being left in the angle, of course. The woodwork is well painted, and the brush allowed to pass over the putty at the side of the pane, and a little on to the edge of the glass; and thus done, the water shoots down it without obstruction from the mass of cracked putty at the side, and finally, there is no washing down of old putty, always a nuisance to the gardener. I have no doubt the general structure of the roof will last all the longer from being exempt from the erratic slippings in of water between open cracks. At all events, the sashes have been done four years, have given our great Azalea producer much satisfaction, and are worthy of a trial by gardeners generally.—S."

BEGONIAS FOR WINTER FLOWERING.—I will state here that the object of this article is to assist those who have not the accommodation of a stove on which they can depend to secure a display of flowers. With such favorable appliances as a stove and an orchidhouse, well stocked, the task is not so difficult; but there are hundreds who have not these conveniences, and to them these remarks are more particularly applicable, and I hope they will be useful. With this brief observation, I will offer a few words on Begonias.

This is a desirable class of plants, and as there are many that can be successfully grown in a warm vinery, or any other like structure, they are by no means difficult to manage; and they offer such an agreeable change for so many different purposes for decoration, that no collection of plants can be said to be complete without them. The points that require more particular attention in growing them are as follows: First, a perfect drainage; this is better secured by very careful packing of the potsherds used, and then, over these a layer of charcoal. Secondly, soil; this should consist of peat,

earth, rotten turves from a pasture field, and thoroughly decomposed stable dung, in equal parts; pay no heed to what nervous people tell you about using dung for them, because I have met with people who have told me it would kill them outright; but my experience tells me the contrary, and I think the very construction of the plant ought to convince any one that to support so many fine leaves as they do, they require more than ordinary amount of nourishment. Thirdly, temperature; for plants set to work in March, a night temperature of 60° and a day temperature of 70° with a rise of 5° or 10° by sun-heat, will grow them to perfection. Use water sparingly to the roots at first, but as the leaves develop themselves they will require more; they must have a moist atmosphere to grow in, and be shaded from very bright sunshine. This is a very important point in their management, especially during the first stages of their growth. But as the leaves gain strength and substance, they will suffer less from sunshine occasionally, though they do not need it at any time. I am an advocate for using the syringe freely amongst them once, and sometimes in hot weather twice a day; but if there is sufficient moisture maintained in the air of the house to keep the edges of the leaves from shrivelling up, those who dislike the syringe may grow them without it. As to the varieties which it is desirable to grow, perhaps I cannot do better than leave the selection to the cultivator; but I will name a few desirable kinds of those with variegated foliage: Maculate incarnate, Miranda, Nitida, Picta, Punctata, Rex, Ricinifolia maculata, Thwaitessii, Virginia; to these I would add the old Fuchsioides, than which there is not a more graceful plant amongst them. I used to grow this variety, especially for large vases, and its bright crimson, drooping, wax-like flowers made it a noble ornament. It requires liberal culture in the way of rich soil, plenty of pot-room, and a moderate supply of air, and to be kept near the glass. When I I grow it, as above stated, I always flowered it in a 13-inch pot. I used to winter them in a warm house; early in the spring the plants were taken out and repotted into 24's. They are plants that require neatly staking, and to be done in good time, as the young growth is very heavy, and liable to fall and snap asunder, to the injury of the plant. The winter temperature of the other kinds named ought not to less than 44°.—*Gardener's Weekly.*

Campanula pyramidalis.—Chimney campanula, may be increased by offsets taken from the side of the flowering plant, or may be raised from seed sown in spring, and like other small seeds, should be sown on firm soil and very slightly covered. Place over the pot a piece of glass to preserve the surface from the drying effect of the air, yet care must be taken (and it holds good in all cases where seed pots are covered in this way,)that the glass is taken off at some period when the air is still, to try the foliage of the seedling, or they would damp off. Pot a few only of the strongest plants, the rest may be nursed on an outside border, as they are almost hardy. As they progress in size, shift into larger pots, and pick away all side shoots, so as to concentrate the strength of the plant in the main stem.—*Gardener's Weekly.*

Explorations in Nicaragua.—Dr. Seeman, has returned to London, and resumes the Editorship of the *Journal of Botany.* He has explored the vegetation of Bayano River, some Americans having loaned him a steamer for the purpose.

The Canon Hall Muscat.—Is of more vigorous constitution than its parent; but it never was a favorite with me, because I could never give it the peculiar treatment which I am satisfied it requires. It is certainly a noble grape when well done; but we so seldom see it so, that I do not recommend it for general use unless it can have a house devoted to it, as in every stage of its growth it will bear 10° more heat than any other variety which I ever grew. This, I firmly believe, is the principal cause of so many failures, and as it is usually grown with other kinds, so that only general treatment can be given it, which is simply of no use.

It must have a special atmosphere, quite 10° above what will suffice for any other variety of Muscat before it will succeed. I am sure it only requires an ordinary amount of observation to convince any one of this fact; take any ordinary case where there is a plant of this variety in fruit, and just notice where the cane is strongest, the bunches the largest, and the berries the most evenly set. In nineteen cases out of twenty, the best bunches in every respect will be at the top of the vine where the heat in the house is the greatest. I am of course aware that this is the case in most instances of any variety; but it is not so strongly shown in any other as in the variety under notice. What influence the application of bottom-heat to the roots might have, as was suggested by Mr. Rust, remains to be proved; the suggestion is certainly worthy of consideration by those with whom it has found favor. I believe an extra prepared border, with a temperature above

the average given to other kinds, is essential to success.—*Gardeners' Weekly.*

The Double Cocoa Nut of the Seychelles Island.—Found only in two small Islands lying in 4° 5° S Lat. 55° 56° E. L. 300 miles northeast of Madagascar. The old French found the large nuts floating on the sea. They called it "Coco de mer," as not knowing any tree which bore them, they supposed it to be a product of the Ocean.

In Islands where Polygamy prevailed, the nuts, for their supposed restorative properties brought most fabulous prices.

In 1742 these Islands were discovered. Large forests of these trees were then found. One hundred years it requires for its full growth,—no one knows how long they last. The common cocoa nut bends to every gale, but this stands erect under all the most terrible hurricanes of the tropics.

At thirty years of age the female blossoms appear. It is merely the germ of the nut, and very minute. The female tree never grows by 20 feet, so large as the male. The male flowers is an enormous catkin 3 feet long, by 3 feet wide. *A single catakin producing a succession of stamens for eight or ten years.*

The weight of the fruit is enormous. Eleven nuts have been counted on one stalk, *each nut* 40 *lbs.* Four or five is the average number on a stalk.

It is ten years after the flowers open, before the fruit matures; four years before the embryro fruit reaches its ful size. The nut is about 18 inches long, heart shaped, with two separate compartments enveloped like the cocoa-nut in fibre.

The base of the trunk is of a bulbous form. This bulb fits into a natural bowl, about 2½ feet in diameter, and 18 inches deep, narrowing towards the bottom. The bowl is perforated with hundreds of small holes, through which the roots penetrate to the earth. The bowl is of the same substance as the nut, and is believed never rots or wears out.

Fire, and the enormous price of the nuts, which for their sake, causes many a fine tree to e cut down, will soon cause this remarkable palm to be entirely extinct.

History of Improved Pansies.—It is impossible to say at what precise period the parent of our garden varieties of Heartsease, or Pansy, first attracted the attention of some zealous and far-seeing florist, who either spared it while destroying the other weeds in his garden, or transplanted it thither from the corn field or waste where he found it growing, for the plant (Viola tricolor), is a native one. At whatever date it was first introduced into gardens, the beginning of the century found it an occupant of our mixed flower-borders, and in a state very considerable improved as compared with the parent; and its convenient mode of reproducing itself from seed, served the twofold purpose of originating new varieties and new plants to supply the place of the old ones, which seldom survived the hardships of a half a dozen years.

The Pansy, however, was never honored with much attention until about the year 1825, when its great adaptability to improvement, and the almost incalculable manner in which it could be propagated, as compared with the Auricula, Ranunculus, Tulip, &c., by which it had been preceded, led some enthusiastic person to bring it into notice; and so rapid was the improvement in its form and colors, that the botanist seemed almost at a loss whether to set down the fashionable occupants of a pan of Heartsease at a flower show as belonging to the genus Viola or not.

That all the improvements where effected at one time and by one individual it is scarcely necessary to say was not the case. A long category of names, includi g most of the celebrities of the day, lent able and skillful hands to the work. Amateurs and professionals alike entered into the spirit of the time, while censors settled the points by which the merits of each flower were to be judged. This work of course, occupied some time; but I believe there was no previons example of a plant so quickly becoming fashionable, and at the same time so rapidly approaching perfection. The Dahlia was in the field some few years prior to it, but was several years in making much progress out of the single condition in which it first reached us. The Pansy, however, being a second-class border flower, was quickly elevated into the condition of an occupant of the same beds that the Tulip, Ranunculus, &c., had held years before. Like them, the opening of fresh flowers was watched with interest. I believe the best varieties then in cultivation were first dignified with distinct names about 1829; and from 1832 to 1842 may be regarded as the most fashionable period of this flower.—*Cottage Gardener.*

Horticultural Notices.

WORCESTER CO. (MASS.) HORTICULTURAL SOCIETY.

We have before us the annual report of Secretary Lincoln, for 1866, by which it appears that on the 13th day of April, 1842, the Worcester County Horticultural Society was incorporated.

It is suggested to improve the prospects of the Society. The only feasible method within the power of the members, in the opinion of the Secretary, is to be found in the complete and speedy extinction of the present DEBT of the Society. Wisely incurred at the outset for the construction of our hall, largely reduced at times by close economy, and, more than all, by a noble munificence of which we have had frequent examples from the same source, it still continues, at the expiration of fourteen (14) years, to seriously embarrass our plans and hamper our usefulness.

O r accommodations, ample at the time of the erection of the hall, perhaps adequate in a series of very unfavorable seasons, are yet entirely to limited for a society such as this should be, and might easily be made. But the inhabitants of the city of Worcester, from whom our chief patronage is derived, whether in receipts for admission, or dues of membership, have swollen from fifteen thousand (15,000) to thirty-five thousand (35,000.) The recent large and gratifying addition to our numbers, chiefly of females, is attributable to the charming attraction of that very class of contributors for which we should be chiefly indebted, and which yet add most to our embarrassment. For it is no exaggeration to assert, that the space occupied by flowers and plants in 1866, (and most richly was it deserved,) was two-thirds larger than that required by any similar display in previous years.

At the late annual exhibition, three separate individuals offered to fill with cut-flowers every stand in our possession. If we had owned the additional forty stands where could they have been placed. Ladies from abroad were obliged to return home with their flowers because there were no stands left in which to display them.

The library is in good condition, and, as will be seen by the customary comparative statement, has been very generally used. This increase of readers is one of the most encouraging signs of continued interest in the aims of the ociety.

The Raspberry—indigenous to our soil in some of its species; alien to other countries in varieties—the latest product of semination, or, as in Canada, of hybridization, where the experiment, though promising every thing, is yet too recent to assure success; the inquiry may well be put, why is its culture so universally neglected? For five (5) successive weeks your Secretary exhibited, this year as last, specimens of his own growth and of the same species. The Rev. Dr. Hill, of this city, states that he picked an abundance of berries from his canes, for *seven* continuous weeks. Can a prolonged yield like this be predicated of the Strawberry, with its almost unlimited modern development, whose name is legion, and whereof, in most instances, no man can detect the excellence? You may possibly, by judicious and extreme care, produce one or the other of innumerable varieties of Strawberries for *four* weeks in succession. But any person who has studied the nature and habits of the Raspberry, know well, from individual experience, that it is unrivalled for extent and duration of fecundity; that, in public estimation, it is but slightly, if at all, inferior to the Strawberry; that it is the hardier of the two, only requiring to be covered lightly with earth in the late autumn; and that the gathering of the fruit, insteading of demanding a painful "crooking of the pregnant hinges of the knee," can be accomplished uprightly and with ease. As yet attacked by no insects strange to our poor methods of prevention, why should it not receive more notice from the pomologists of a society, in which every new Strawberry is welcomed at the countless perils of drought, frost, and last,—inevitable and most destructive, the *Robin*,—only to culminate in the ultimate delight of a precarious cup, picked wearily and by the sweat of the brow beneath the hot sweltering suns of June. The Cherry, strange to relate, as if desirous to vindicate itself from the official condemnations of our Society in declining to recommend its culture, blossomed and fruited with pristine luxuriance. The predictions of our wisest pomologists were signally, yet pleasantly falsified. Even aged trees appeared to revive from the almost mortal injury occasioned by the terrific cold hurricane of 1861, and strove to atone for repeated deficiences. The canker-worm forbore its ravages to a great extent, confining itself in the main to the barren though stately maple. It is truly gratifying to be able once more to cherish a hope of the permanent recovery of this palatable, convenient and useful fruit.

The display of Roses at the summer exhibition was very fine. The thanks of the Society are due to those ladies whose interest has been so generously manifested for three successive years, by the contributions of su h large and splendid collections of this favorite flower. Laboring from the pure love of Floriculture, it is due to them, at the very least, to be assured that their unselfish efforts are appreciated.

The last season was disagreeably distinguished by the advent of a new insect enemy. The Currant, always prolific in spite of neglect, abuse, or downright ill-treatment, is threatened with absolute an-

nihilation. The leaves are devoured and the berries blasted, and the foe, a dirty, ugly-looking worm, whom it makes one crawl all over simply to touch—much more to squash, seems impervious to all appliances for his destruction, with the single exception of whale oil soap. They have been thoroughly coated with white hellebore, so strongly recommended in New York, but without the slightest effect except a momentary paralysis. Yet their habits are such that it would appear as though by diligence their fell career might be terminated. Usually concentrated upon the lower side of a single leaf, at the base of a bush, they can be found together and summarily destroyed. And they *must be* not only checked but exterminated. Cherries might possibly be yielded to the canker-worm, but the Currant *cannot* be given up without a struggle. For an immoderate supply of this invaluable fruit, eaten at all hours of the day in its appropriate season, is the most grateful, cheapest and most effectual prophylactic against summer diseases of children, if not of adults.

From the Western States of the Republic come advices of the slow but sure advance of another fearful pest—*Doryphora decemlineata*—the ten (10) lined spearman; a new potato bug. This insect is said to be advancing eastward at the rate of fifty (50) miles a year. Is is to be hoped that, before reaching our borders, the scientific skill and practical sagacity of our friends at the West may devise some easier and more speedy method for its destruction than the only one known thus far—that of picking it off by the hand.

OHIO POMOLOGICAL SOCIETY.

From its last report we learn that, Mr. J. F. Bennet, of Pittsburg, on invitation, read to the Society an essay, entitled. "Theory of Rot and Mildew in Grapes, Blight in Fruit Trees, &c.," in which it is argued that all these diseases, including also the rotting of peaches, plums and cherries before ripening, and the *black knot* in plum trees are caused by *electricity*. He believes that in moist, sultry weather, such as is found most conducive to these diseases, there are wounds produced on fruits, vines, trees, &c., by minute strokes of electricity, causing death to the points struck, and thus producing rot, mildew, blight, &c.; that grapes and other fruit when well covered by leaves are comparatively exempt, the leaves only receiving the injury: and that the best way to protect grapes and other fruits from injury, is, by the use of wire trellisses or conductors, extending from the vines or trees to moisture in the ground.

On being asked whether any experiments had been tried in support of his theory, Mr. Bennet said he knew of none as yet, but there would be some next year. Mr. Bateham said, he has not been able to settle any theory in his mind as to the cause of the disease; only he was convinced it was in some way attributable to the atmosphere, not the work of an insect. He did not believe in charging such phenomena as we can not otherwise account for, to electricity; still he was in favor of "proving all things."

Mr. Boalt of Norwalk, and several others said the season had been quite remarkable for the blighting of apple and pear trees. Many growers of pears, especially, having lost so many trees thereby as to feel much discouraged.

Dr. Warder referred to the discussion on this at the meeting of the Society at Painesville, (see 12th report, p. 48) and the use of copperas-water as suggested by Dr. Kirtland as a preventive or remedy for blight, and asked whether any persons present had experimented with that article.

Mr. Wood said he had used freely the liquid drainage from a coal mine containing copperas, applied to the roots of his pear trees during summer; it did not prevent blight; should not consider his experiment conclusive. Mr. Buttles had used copperas-water on grape vines to prevent mildew without any satisfactory results—injured some vines by using the liquid too strong; he should experiment further.

Mr. Springer said as the result of forty years' observation and experience, he was convinced that blight in pear trees was in some way attributable to over luxuriance of growth or a plethora of sap during hot weather in summer. Other gentlemen concurred with Mr. Springer so far as to admit that as a general rule.

Mr. Bateham said, Dr. Kirtland on further experience had found copperas no good.

ILLINOIS STATE HORTICULTURAL SOCIETY.

From the report, the last winters meeting was well attended. In the evening B. D. Walsh, the editor of the *Entomologist*, addressed a very large audience. This was followed by a discussion on cherries, of a very interesting character. What is known as the May cherry of the West, or sometimes called Early Richmond, was decided to be a native or American seedling, originating near Richmond, Va., from whom the elder Prince took scions to Long Island and christened the true Early Richmond, and Downing committed the error of making

it a synonism of Kentish. It is supposed that the French cherry, Donna Maria, may be the same one sent back to us under this new name. At all events the Society decided to call this cherry "Early May," and if our French friends lay claim to it, let them prove it.

This cherry is the only market cherry of much importance in the State, and now stands at the head of the list. It was stated that there was an orchard of 600 trees in bearing near Champaign, and that the trees were now heeled-in for one orchard of two thousand trees, and three of one thousand early, besides small lots of fifty and and a hundred each.

ALTON (Ills) HORTICULTURAL SOCIETY.

The spring meeting seems to have been a very interesting one. Mr. Flagg gave an essay on the flower garden; J. E. Starr, one on the best flowers for the garden.

Dr. B. F. Long presented and explained the nature of certain Fungus growths found upon the currant, etc. Wherever they were found, it was a sure indication of disease; they were soft, spongy and wet, sap suckers of the worst kind. As a remedy, would remove the Fungus growth, and use potash in some form.

Mr. J. Huggins, committee on Entomology, presented specimens, male and female, of the Canker worm, and its eggs.

This little insect was one of the most formidable foes in our orchards. they were not so much nor so well known West as East, but they were on the increase here, and he would urge one and all to be watchful. As a remedy, let the hogs have free access to the orchard, and stir the ground by repeated plowing.

D. E. Brown strongly and urgently favored frequent plowing of the land, early and late, as a means of destroying insects.

Dr. Hull thought that but little good was done by such a course, as the insect, when in the earth, was in a condition to withstand all changes. His supplies are with him, and when he is disturbed, all there is of him or necessary for his continuance, is kept together.

Dr. Long was fully convinced of the efficacy of the plow, as a means of destroying insects, more especially the canker worm; his experience and observation all tended to this result.

Mr. Huggins confirmed the remarks of Dr. Long. It was no new theory, but an old and good one.

Mr. Brown would let the hogs have the run of orchards, found much benefit in so doing.

THE IOWA HORTICULTURAL SOCIETY.

This Society is in a very prosperous condition. At the winter meeting, the President, D. W. Kauffman, having collated the several list of best varieties of apples presented as aforesaid, proceeded to submit each variety for the approval or rejection of all the members present, when a most concise, pleasant but sharp discussion ensued. 24 varieties were saved by a majority vote from the fatal dash of the President's expunging pen. The successfully escaping ones are as follows, viz:

Summer.—Red June, Sweet June, Red Astrachan, Benoni and summer Pearmain.

Fall.—Fameuse, Maiden's Blush, Fall Wine, Dyer, Porter, Duchess of Oldenburg, Haskell's Sweet, and Rambo, if top grafted.

Winter.—Jonathan, Willow Twigg, Ben Davis, Rawle's Jennett, Wine Sap, Roman Stem, Sweet Romanite, White Winter Pearmain, Wagner, Rome Beauty, and Yellow Bellflower, if top grafted.

Some of the members felt not a little chagrined on finding their special favorites consigned to the shades of general forgetfulness, but all seemed willing to submit with true Christian fortitude and resignation.

Mr. Leonard highly recommended the Rambo and Early Harvest, and condemned the Red Astrachan and Talman Sweet.

J. C. Smith advocated the Early Pennock, and opposed the Maiden's Blush and Fall Wine; while the Secretary favored the Sops of Wine and the Talman Sweet.

A member moved that "we approve the decision of the Committee in N. Y., who awarded the 'Greeley Prize' to the Concord grape."

An animated discussion thereupon arose, highly entertaining and instructive, conducted by Wm. Bullard, Capt. Matthews, Levi Kauffman, Suel Foster, J. B. Jobes, D. Leonard, and others, all veterans in Iowa grape-growing, whose pointed statements of their testing experiments with the Concord and other choice varieties, and the results that followed, were listened to with the deepest interest.

The President then put the question to the votes of all present, and it was carried without a dissenting voice. The Society was also unexpectedly made the recipient of a free gift from the county officials of the use of a capacious, well-warmed and lighted Court Room for the sessions just closed.

Thus ended the first annual meeting of the Iowa State Horticultural Society. "Long may it wave," and its many future gatherings be alike pleasant instructive and cheering.

D. W. Kauffman, *President.*

W. W. Bebee, *Secretary.*

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Hints for July.



FLOWER-GARDEN AND PLEASURE-GROUND.

Few have any idea of the enormous increase of Red Spider in gardens, and the great amount of injury done by it. Thousands of plants set out in spring, dwindle or die out-right at this season, and the loss set down to many causes but the right one. The leaves are first dotted with yellow spots, which grow larger while the green grows smaller, and at last die away altogether. If they are taken in time the insects will not increase much, an occasional examination will soon show their existence in occasional instances, and these may be destroyed by rubbing the finger under the leaves, but when it becomes numerous the syringe must be used to throw water slightly impregnated with coal oil in and about the leaves. Just enough oil to give an odor to the water will do. There is danger that an overdose will injure many of the leaves, but it can do no more injury than the red spider will, and if you destroy the insect with the leaves, a new crop of leaves will come out which will be clear of all encumbrance. It is worth a little unpleasant feeling to get rid of such mortgages on your capital stock. Not only flowers but evergreens are very liable to this red spider pest, and particularly the evergreen tree Box, all of which must be treated in the same way.

To distinguish the Red Spider, remember it is not always *red*. Its color is in a measure determined by the plants on which it feeds, just as a man is known by the company he keeps. Sometimes it is brown, or nearly green or white: and so small that many can not see it without a lens. The yellow spotted leaves, however, under which is a very fine webby process, will always tell the tale.

The Red Spider, the scale and the aphis tribes, of which there are many species, are the chief insect enemies in flower gardening, all of which may be, and let us say must be kept in check by the above directions being attended to.

If any plants or trees, set out in spring, do not push freely, or have withery looking leaves, prune back some of the branches. It is astonishing how it helps them. Also loosen the soil about the roots on a dry day, and within a few hours after loosening roll or press it firmly down again. This pulverizes the soil, and pulverized soil does not dry like a very hard or a very loose one. Also cut away faded flowers, especially on newly planted things; it is surprising how it invigorates the languishing plant.

If flowers happen to get into poor ground, and do not grow well a little manure water will help them. If too strong it will injure. If the drainage of a stable yard be used, about on gallon to ten of water would be safe. Where this cannot be had a tablespoon full of guano to about a gallon of water would do. Where none of these are at command, soap suds or any rich matter in about the same proportions may be used.

Soil for flowers should, however, not be over rich. Some things like Lantanas or Geraniums have more leaves than flowers in too strong a soil.

Plants set against walls and piazzas frequently suffer from want of water at this season, when even ground near by them is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucket full of water, allowing it time to soak gradually away, and when the surface has dried a little draw in loosely the soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight of water, and the harder the soil becomes, the easier it dries; and the result is, the more water you give the more is wanted.

Whenever the bark of any plants separates easily from the wood, and plants have ripened their wood enough to form prominent eyes in the axils of

the new growth of leaves—budding may commence, and may continue with different things till September. It is an easy way to change trees we already possess into others more desirable; choosing closely allied species for the operation. Thus a common ash might be transformed in one season to a fine specimen of a Weeping Ash, or the new Oregon Maple be budded into large trees of sycamore. Sometimes advantage may be taken of working mere bushes into the heads of large-growing trees,—transforming shrubs into nobles of the forest. Many trailing and meagre-growing willows, cherries, maples, &c., are rendered very vigorous growers by being budded on strong growing kinds. Budding also affords room for tasteful combinations. Trees with different shades of foliage, hues of leaves, habits of growth, or color of flowers, may be worked on one common stock,—fancies of which kinds add much to the interest of a place when judiciously executed.

Many things do not take well by budding; in which case inarching may be employed. This is done by bringing together two half-ripened shoots of different varieties, just shaving the bark at an opposite point in each, making the two faces of the shaved part meet, and then tying the two branches together at the junction, lapping the tying material (bast bark is the best,) so that the whole cut part is encircled by it. Most parties who intend to inarch, keep some of the kinds they wish to use as scions in pots, so as to bring them at the proper season in contact with the stock. Shelvings and other contrivances are resorted to to support such pots, in and amongst the branches, when the operation is to be performed at a height from the ground. A plan, however, which obviates all this trouble, and is generally successful, is to hang bottles of water near the points to be inarched, and the scion is placed in this, from which it derives enough water to carry on its vital functions, until the union with the stock takes place.

VEGETABLE GARDEN.

Sow endive, and towards the end of the month transplant in rows. They should be set out in rows eighteen inches apart, and one foot from each other. The soil can scarcely be too rich for them. Seed may yet be sown for a later crop.

If Brocoli is a desirable vegetable, it may be had all through the winter by being sown now. In about four weeks plant out into rich garden soil. On the approach of frost, take up the plant, with a portion of soil adhering, and pack them closely in a warm and somewhat damp cellar. They will continue to grow, and produce nice heads.

Beans may be sown up to the end of the month. For winter use, the White Kidney is very popular, although other kinds are very extensively grown for the same purpose.

In some families, large, full-grown carrots are objectionable. Seeds of the Long Orange sown now on rich sandy soils, form neat and desirable roots before winter. The same may be said of beets.

Cucumbers for pickles are also sown about this time. They usually produce a greater number, and consequently smaller fruit, than when sown earlier. The Short Prickly is the kind to employ.

The main crop of winter cabbage is often planted the first or second week in July. In planting, if the weather be dry, it is a good plan to make the holes before planting and fill up with water; after soaking away, the plants may be set in, and they seldom wither afterwards, though without rain for a month. Another and more expeditious plan is to have the plants ready with their roots in a pan of water. They are then set in the hole at the time it is made The water adhering to the roots then gives to the set out plant the advantages of puddling.

FRUIT GARDEN.

When from Eden the first fruit gardener was ignominously expelled, and "thorns and thistles shall the earth bring forth" fell like a blight on his crushed and bleeding soul, how comforted would he have been could he but have foreseen that a portion of his posterity should have a special privilege in mitigating this direful curse; that an universal yankee nation would arise before whose implement inventing genius even thorns and thistles should do homage! And yet it does seem that we cannot get clear of the penalty to be paid through the sins of our primeval sire. By the sweat of our brow we must labor, and no sooner do we think we are in smooth water and

> "Not an effort, not a will
> Yet progressing onward still."

down along the lazy stream of life, but something unforseen arises to ruffle the surface, and make us take out our oars again. The cultivator, and weeding machines have ceased to make weeds a terror to us, but a new enemy, not in the primeval curse of thorns and thistle, but of bugs and other vermin has arisen, and in battling with them we find still "in the sweat of our brow," only can we eat our fruit.

So far the battle with insects has been stronger than our battle with weeds, but it is well for our

friends to remember that the same course must be taken with them as with weeds, namely persistent effort. Every weed destroyed is so much gained, and so is every insect killed. We give no thought to this subject, but it is one we must think about. There is no doubt one great agent which we must encourage to help us is the birds. They eat our fruit, but it is much easier to keep fruit from birds than from bugs.

The number of insects destroyed by birds is wonderful. In our own grounds the feathered tribes find safe protection. We think we have the best ornithological collection of any one near here, and from the arrival of the blue bird in February till the first of June, when the first fruits in the shape of strawberries ripen, they eat nearly *nothing but insect food*, for they have nothing else to eat. We are quite sure insects by the million are destroyed in these three months by robins, blackbirds and other feathered friends for us.

One of the great pleasures of the fruit grower, is the efforts he makes to improve his varieties; at this season he will be busy making notes of the conduct of various kinds, in different soils, and opposing circumstances. He will remember that different places, and modes of culture have very much to do with the size and quality of fruits, and that therefore it will not do for him to run in a hurry after any big thing he sees until he has had a chance to see more about it. We are button-holed every day by our friends, every one of whom has the most remarkable seedlings ever known.

Communications.

COAL OIL FOR INSECTS.

BY J. M.

Your correspondent from Cleveland, Tenn., in the June number of the *Monthly*, gives us some interesting facts, on this subject; his experiments do not seem to have been satisfactory to him.

I should suppose it to be almost impossible to clear a bed of young plants of insects by the use of the syringe or watering pot, from the difficulty of getting the oil in contact with every part of the plant, but when plants are in pots and can be immersed, oil is certain death to any plant insect. Last spring I tried it very extensively on a general collection of plants consisting of Azaleas, Camellias, &c., and the experiment was very successful, a few plants only being scorched. I found a very small quantity of oil sufficient, using only about two table spoonsfull in a large tub of water, the plants were then immersed and then plunged for the summer in a sunny place out of doors. It completely cleared them of all insects, Mealy bug, Scale, Green fly, &c., and in some case of leaves too, but not to any extent, or to any visible injury to the plants now. A more healthy lot of plants than they now are could not be wished for, and their flowering the past winter has been most profuse. A friend, who has also tried the oil remedy tells me the danger is lessened by placing the plants in the shade afterwards for a few days.

I have found the use of oil unnecessary since the time recorded, from the absence of any insects on the plants. When they do again appear I shall certainly "oil them."

USES OF EVERGREENS IN ORNAMENTAL PLANTING.

BY C. H. MILLER, PHILADELPHIA.

Read before the Pennsylvania Horticultural Society, April 2d, 1867.

A TREE is an object which has, at all times, been held in great admiration. Its beauty of form, its grand appearance, and its usefulness in so many ways appeal to the esteem of all mankind, in all ages, associated with the dwellings of civilized nations in every country.

The Persians, Greeks, and the Romans, were particularly fond of trees. It was the *greatest ambition* of their *wisest* and most *wealthy men* to cultivate trees with their own *hands*,—and plantations, whether planted by Nature or Art, were by them held sacred: and stringent laws were made for their protection.

In this country the increasing taste for agricultural and horticultural pursuits has induced a great many to remove from the cities to more pleasant dwellings in the country, surrounded by trees and flowers. Thus a demand has been created for them which has, consequently, led to the extensive employment of trees, both as objects of use and ornament.

Trees, especially evergreens in a growing state, afford shelter and improve the local climate, ameliorate bad soils, produce shade, seclusion, distinction of character and concealment of disagreeable objects. They also add to the charms of agreeable objects—creating beauty, and adding value prospectively. For these combined purposes, planting is now extensively practiced,—and what relates to their use and culture is the subject now under consideration.

SHELTER CONSIDERED ECONOMICALLY.

The advantages to be gained by dividing tracts of

barren and bleak lands into fields, by planting screens and by plantations of *evergreen* trees, are certainly and evidently great, whether considered in the light of affording immediate shelter to the land, or in that of improving the local climate.

The fact that it is possible to improve a climate by judicious planting is an established fact; and our agriculturists of the present day would do well to give attention to this matter,—as cattle thrive better in fields and pastures that are even moderately protected by trees, than in the open fields. In the breeding of fine cattle, a farm well sheltered by plantations and well-kept hedges is especially desirable; and I do sometimes wonder that more attention is not paid to this important matter of protection; and that agriculturists,—and especially those engaged and interested in improved breeds of cattle, after the liberal outlay in the erection of fine, substantial buildings,—do not pay more attention to this most important subject of shelter planting.

If we inquire further into the cause why shelter is so beneficial, we shall find that much depends on an early season and in getting an early rise of grass. I have known pastures to be two weeks in advance in fields well sheltered, and of much better quality than in that of open fields, where the best and tender grass is destroyed by the frosty, cutting winds in early Spring.

The cattle, also, have it in their power to indulge in the shelter afforded them by the plantation screens and hedges—in cold spring and fall weather, and also in the ever grateful shade and shelter from the scorching rays of a midsummer sun.

In procuring shelter, much depends on the mode of planting—evergreens are decidedly the best for the purpose,—but on high and bleak situations it would be well to plant some fast growing deciduous trees for protection to the more tender evergreens while young, but which soon becomes more hardy and valuable in a few years.

In many situations that are so exposed it is extremely difficult to rear evergreen trees without some mode of procuring shelter for them during their early growth: and this is not to be wondered at, when we take into consideration the care and attention they receive in the *nurseries* while young, and where they are protected and sheltered by each other,—and transplanted to an open, bleak field,—which is often the case, where the wind and storms have full play on them. In such situations thick planting—and planting the more hardy deciduous and rapid growing species, to nurse and protect the tender and more beautiful kinds should be resorted to, it being understood, of course, that those acting nurses should be gradually cut away as the valuable ones have established themselves.

The common practice in planting is to mix different species of trees together, which, under the system just recommended, is unavoidable,—that is, where nurse or shelter plants are required. In many cases opinion seems divided on the subject, although the mixing of different kinds is generally most approved of; and, with but few exceptions, I think the effect by mixture the most beautiful.

Another important subject connected with the management of evergreens, is that they require and thrive best in a moist climate. This is especially noticeable in the fact that, on the north side of the hills and along the margins of rivers, the evergreen trees most abound; and, although the soil may be of a barren and rocky nature, their favorite climate of shade and moisture more than compensates for the want of soil, and there they luxuriate in all their natural beauty.

So well is this fact known, that on the shady side of buildings, plantations, and similar positions, the tender kinds are generally planted, and escape injury: while on a southern aspect they would most likely be killed outright; thus proving that shade is one of the requisites necessary to the successful management of evergreens.

It is my opinion that a great many of the most beautiful evergreens that are thought to be too delicate and tender for cultivation, may be successfully treated by a careful study of their requirements,—in regard to shade and moisture. Now by planting a portion of deciduous trees with the evergreens, we not only protect them from cold, cutting winds in winter, but, what is of more importance, provide them with shade in summer; and with the shade comes moisture,—or, rather, the shade prevents evaporation,—and thus, in some measure, secures that moist and genial climate so essential to the health and vigor of the most beautiful and useful evergreens.

Instances of the truth of this have frequently come under my notice, and especially this season. I have seen the *Hemlock* and the *American Holly*, where exposed to the sun, almost killed; but in the shade is still beautiful and green; therefore we may assume that by adopting the mixed system of planting we are only following Nature's own wise precautions, and the admirable laws she has laid down for our guidance.

This brings us to consider the effect planting has on the climate. The advantages in point of climate which entire tracts of land derive from extensive woods and plantations, are many and surprising.

Not the least of these advantages is the moderation of intense heat and cold—producing grateful shade and shelter from dangerous winds, generating abundance of rain, giving origin to springs, and thus producing abundance of water; increasing the evaporating surface, and consequently rendering the atmosphere more humid.

In gardening, shade and shelter are not of less importance than in general economy; and evergreen trees are among the most important elements in securing this object. Whether used in plantations or hedges their effectiveness is decided.

The use of evergreen hedges in gardening is of long standing, and is now beginning to be of acknowledged importance in agriculture, and may be considered as the criterion of improved culture and love for the beautiful.

When a tract of land lies bleak and and is open, cultivated in the common field manner, divided by common post and rail fences, the want of sufficient individual interest precludes all interesting exertion, and the country always exhibits the same barren appearance, to persons of cultivated taste, that is quite incompatible with the practice of improved agriculture.

SECLUSION.

The seclusion afforded to the dwellings of citizens by hedges, or by screens, plantations, or groups of evergreen trees, in their small but snugly planted villas, is of the highest importance in relation to domestic comfort. Trees, by their elevation and compact foliage, shut out and hide external objects. obstruct the gaze of the over-curious, thus giving a sense of security from observation, while it leaves the owner in the possession of an agreeable privacy in which he may feel that perfect freedom from all restraints—enjoying himself in his own way, which is one of the great pleasures of life. In scenery where great deformities or disagreeable objects are mixed with the beautiful, trees will modify and often completely conceal the former, while at the same time they may be so arranged as to display the other to advantage.

The concealment of unpleasant objects is well-known to be one of the principal uses to which evergreen trees are applied. In small places and in the thickly, built up portions of large cities, the desire to shut out and conceal dwellings of others, and especially those too near, is universal; and this, not from any particular dislike to one's neighbors, but from a wish to have a quiet, secluded and pleasant place of retirement, and from an earnest desire to have a home *in* the country as much *like* the country as possible.

Evergreen trees give to indifferent objects an interest that would otherwise escape notice, or whose beauties would be lost in a general view. They also contribute to and heighten the effect of agreeable objects, by associating and grouping, or, in other words, by a judicious and tastefully arranged system of planting, in connection with those objects, and thereby forming a complete design or a perfect whole; and as every complete whole consists of a number of *parts*, it will be easily understood that the more effective the portions the more perfect and complete will be the whole; and as evergreen trees form one of the principal parts of rural economy, it consequently follows that a country residence without the aid of trees would be but an imperfect part of the whole, and, in effect, anything but harmonious or consistent.

In the immediate vicinity of this city are numbers of *residences* that are highly ornamental, elegant and even beautiful; but how much more beautiful would they appear if more regard was paid to the embellishment of the surroundings, that are intimately connected with the dwelling. Architectural beauty ought to be considered conjointly with the beauties of the landscape and rural scenery, as component parts of the general scene, united with surrounding *lawns*, *trees* and *shrubs*, the whole forming a harmonious union so charming and beautiful to cultivated taste.

The distinction that *any kind of trees* imparts to dwellings is considerable; but evergreens are so much more conspicuous and ornamental than deciduous trees, not only on account of their beautiful forms and colors, but by their distinctive features in general. In connection with horticulture and agriculture they are indices of cultivation and taste. It is very gratifying to see the increasing taste for progressive improvement in horticulture, in all parts of the country, that have taken place within a few years, showing that the people can and do appreciate the warm and cheerful air of comfort imparted to a dwelling snugly embosomed in the foliage of trees, or on the sunny side of a group of evergreens. The expression of domestic comfort is highly suggestive,—conveying, as it does, a pleasure of the highest order both to the occupant and the passing stranger.

The distinctive features of evergreen trees is not less remarkable to the traveller as he passes rapidly over the country, as he notes the improved and impressive character of the surrounding landscape dotted with rural residences, surrounded by ornamental evergreen trees and shrubs, creating at once the impression of a pleasant and lasting satisfaction,

and procuring for the improver that appreciation and credit for improvement which belongs to him and which is his due.

THE VALUE OR PROFITS OF PLANTING.

I have endeavored to point out some of the advantages derived from planting evergreen trees in bleak, exposed situations, their usefulness in regard to protection and shelter, and their adaptation to ornamental purposes. Those advantages are real and unmistakable, and must be sought for in the additional comfort and pleasure imparted to every-day life.

On the improvement of the climate, in the beauty of the landscape, and on the additional value conferred on the immediate neighborhood. This sort of value cannot be easily estimated by any general rules; but, I think, capital employed in this way, and for such purposes that I have here pointed out, may be considered as likely, in the end, to be as remunerative as other horticultural or agricultural pursuits,—as purchasers of such places, thus improved, will easily foresee the increase of value which will arise from such improvements, and its attractive ornamental appearance.

THE MORNING GLORY, AND MARVEL OF PERU.

BY CHRONICLER.

The name *Morning Glory* is given it by its blooming only in the mornings, and its generic name *Convolvulus*, is derived from its habit of rolling it- blooms to ether in the heat of the day; its real name is *Convolvulus major*. There are many species or varieties of it, whose bl oms are of all shades of blue, and all shades of red from pale pink to crimson, one is pure white, faintly ribbed with pale lilac, the ribs of the others are darker than their grou ds. When all are growing together and their blooms expanded in promiscuous profusion, they make a most splendid show, enough to draw every sluggard from his *kennel*. The seeds are sown in spring, and the plants or vines twine up upon strings, wires or poles, and bloom four months i the year; if they get waterings in hot, dry weather and all the seeds cut off as they form.

The name *Marvel of Peru*, is derived from its real name *Mirabilis Jalapa* and from its marvelous habit of blooming in the nights and not in the day, it is called "Four-O'Clock" fro i its blooms beginning to open at 4 or 5 o'clock in the evenings, and they close up at 8 o'clock in the mornings. There are three species; one has crimson blooms, one is yellow, and one of white blooms. There are at least three variegated varieties; one has blooms of crimson, beautifully blotched with pure white, one has blooms of yellow and white mixed, and one has blooms with white grounds superbly spotted and striped with scarlet crimson.

The three species or "selfs" look best when planted promiscuously in large clumps, and make a fine varieg .ted show. The variegated varieties are most admired when growing singly in borders close to walks, as their matchless markings are more clearly seen. As *Convolvulus* is the glory of the mornings, so *Mirabilis* is the delight of the evenings. The seeds of the Marvel of Peru, are sown in spring, thickly in drills and transplanted when the young plants are two inches high, each plant will grow as large as a daily rose bush, so in planting in clumps they are set thirty inches apart each way. Although they bloom three months in the year from the seeds sown in spring, their roots grow as large as fall radishes and nearly in the same form, and if dug up before hard frost and kept in boxes among dry sand or soil in a cellar, all winter, and planted out after hard frosts are over in April; they will bloom earlier and longer.

The blooms of both *Convolvulus* and *Mirabilis* are extremely beautiful and profuse, the former is a vine, the latter a bush; they are doub y interesting when growing in close proximity, owing to their blooming at different times of the day, but on rainy and cloudy days, they both bloom on until noon. They seem as if ordained to illuminate the darkness of night and dispel the gloom of day, to give joy to sorrow and mirth to sadness.

PEAR BLIGHT.—ITS CAUSES AND PREVENTION.

BY MR. P. J. BERCKMANS, AUGUSTA, GA.

Editor of the *Gardeners' Monthly*: I published in the *Southern Cultivator*, June, 1860, the following remarks:—

"The *cellular* or *utricular* tissue, may be considered as the basis of vegetable organization; not only does it constitute a part of the composition of all parts of a plant, but it is the origin of all modifications of the elementary tissue which constitutes the organs of vegetables. Being examined with a microscope, this tissue shows itself composed of *utricules* of different forms, but attached to each other and forming a continued mass; these *utricules* have communications with each other by invisible pores, and are filled with a liquid commonly called *sap*. The tree or plant, in its normal state, has its functions of vitality performed upon the same principles as the animal; by any sudden cause, such as overfeeding, or its reverse, starvation, the economy is destroyed and disease or death is produced.

Starting from this point, we find that the Blight shows itself more abundant after heavy rains, following a protracted drought, or in the early spring, and again at the flow of the so-called *second sap*. The theory is, that a rain highly charged with nutritive gases and readily absorbed by the plants, (having had a moderate supply of nutriment for a protracted time) must have the inevitable effect of suddenly filling the utricules with a greater supply of sap than they are able to contain; this creates rupture and inward extravasation and is a hemorrhage of the vegetable blood, *i. e.* sap, and at once brings death to the plant or part of the plant where the accident happens.

This hemorrhage may take place over the whole cellular tissue, or be only partial, and occasions the whole or partial destruction of the plant. This effect is caused, also, for the same reason, when a vegetable gets its sap in circulation after being in a state of lethargy for a long time, either in the spring or during the growing season. This is commonly called Blight. Blight already marked cannot be cured, but it may be modified or its further progress arrested. If we examine closely the affected trees, we will find that many of their branches are of a uniform thickness for a considerable length, and often thicker at the upper end than at the base, this is owing to what in gardener's language, is known as *bark bound*, those are the places where blight will in most cases, appear; the cellular tissue in these places is compressed and inadequate to contain and transmit the sap necessary to the normal functions of the tree. Now, to prevent blight in those places give a *longitudinal* cut so as to divide the bark of the limb of the tree, this at once remedies the evil, the utricules are released of compression and can perform their functions at ease. Trees thus treated have invariably shown health and vigor, where before that simple operation they were drooping and vegetating slowly, showing that it is not only a preventive of blight, but a source of renovating and giving new life to a tree by causing the sap to flow in unobstructed channels.

Blight is most always an indication of decay in the variety affected. Such pears as Bartlett, Belle de Bruxelles, White Doyenne, ect., having been extensively and long propagated, have deteriorated in vigor by constant working upon stocks often having no affinity with the graft and from other causes, have attained a state of debility.

This is the more apparent, the farther they recede from the first propagated trees of those varieties. The blight shows itself by the partial or entire alteration of the color of the leaves; when it is slow blight, that indication is sufficiently in time to apply the remedy, but in cases of sudden blight, the bark is often struck past remedy before the leaves show the disease at a distance.

The immediate causes of Blight seems to be:—

Unhealthy condition of the tree, brought on by transportation, bad management, decay of variety, as above stated, or by the following more local causes: Bad or improper soil, too much moisture, sudden variations of the temperature and *incompatibility* of grafts with some stocks.

The interior decay shows itself long in advance and by preparing the blight slowly, affords time for prevention. The immediate removal of all diseased wood is therefore of the utmost importance.

Nature often has her own way to split or burst the bark to give vent to the superabundant sap, but that process if left alone to her, and unaided by the knife, is often performed in a rough, irregular way, and the tree is much relieved in finding a ready made exodus for superabundant sap. Filling up a split is much more easy for the tree, than opening a valve which must be healed again, and in many cases is to hard too yield readily to Nature's efforts."

Since writing the foregoing remarks, several years have gone by, during which I have had ample opportunity to prove practically that my theory of blight was not too hazardous in substantiation. I have the gratification to see every tree, which has been *liberally* incised from trunk to limb, in a flourishing condition, and those trees which were not treated in this manner are in many instances pre-eminent by their vacant spaces in the orchard.

Fungus *may be* a cause of Blight, but my observations are that it is always brought after the blight, as nature will always bring forth destroying parasites as soon as life is extinct in a plant. I confess, although close my observations have been, never having observed any *Fungi before* the appearance of blight, but often *afterwards*.

ONE OF THE ROADS TO HAPPINESS.

BY "LET WELL ENOUGH ALONE."

We don't know how rich we are; we don't know how happy we are, until we look below us. There we are quite sure of finding an almost infinite variety of degrees leading from less wealth and less happiness than ours, down to positive calamity and absolute poverty. And—alas for poor humanity—the knowledge of this makes us feel happy, and wealthy, and contented with our lot.

These thoughts, almost the exordium of a sermon, occurred to us in reading in the German *Hor-*

cultural Weekly, a report of an exhibition in Moscow, the ancient Capitol of Russia.

Most of the plants exhibited, as achievements of the gardeners' skill, were such as are quite common to us, and are properly not considered by us worthy of a higher cultivation. Skill in fact is measured by the difficulties to be overcome, and things, growing easily enough with us, are pretty hard to raise under the Russian climate. There winter and summer may be called equally vigorous. The winter is long and severe, lasting seven months or more; the summer is but short, and almost without transition of any spring succeeds winter. It also is very hot, so as to perfect in its short term all that man and beast require during the long winter. We can easily fancy to what difficulties vegetation, excepting the native one, is subjected.

To bring the matter nearer home. Suppose the *Pennsylvania Horticultural Exhibition*, by some magical feat, stepped from that directly into the *Newfoundland Horticultural Exhibition*, or vice versa. How poor the one, how rich the other! would they exclaim. Yet, Pennsylvanians and Newfoundlanders glory alike, and glory justly in their respective exhibitions.

"Poor Newfoundlanders!" Poor Newfoundlanders? Not at all poor. There are some degrees of latitude yet from Newfoundland to the North Pole, and each degree thinks itself higher gifted than the other, and thanks God and nature for it; till the highest limits of the globe are reached, and man and vegetation cease together.

Still, how often in our nursery practice have we had to listen to grumbling. Mostly from such as had visited Europe.

One said: "There are more American Rhododendrons to be found in France than in our own country."

The other said: "We have the latitude of Malaga and cannot grow its grapes."

A third said: "The fine Portugal laurel grows in cold clammy, northern England, and we cannot raise it even in Virginia, so much more southerly than Portugal itself."

A German says: "Our winter kills his German nut trees."

An Englishman: "Oh for the sweet-scented live hedges of old England, why *can't* I sueeeed with them?"

An Italian: "I have tried the olive in Georgia and have lost my time, my money, my trouble and my hopes."

Now, each and all of these complaints are true. True but wrongful. A wilful and deliberate shutting of the grumblers' eyes against the many advantages of this country and sections of country against this or that country, or against another section of our own country. A clean forgetting of the great Compensating Spirit which prevades all creation. An utter neglect of trying to strike a balance between advantages and disadvantages.

And now let our readers cheerfully and contentedly return with us to Moscow.

There they see a good many of our "weeds" cultivated and exhibited as things to be enjoyed and to be proud of. They see further, and smile again, most indifferent cherries and pears are eyed at as fruit fit for the gods of Olympus. And they feel a certain pleasant sensation when they see Lima beans and sweet potatoes raised at enormous expense in Prince Cherchinakoff's hothouse for the Cherchinakoffian table. A certain pleasant sensation which, according to *La Bruyere*, we cannot help but feel when we hear of a friend's misfortune; a feeling, which, according to him, means: 'tis *his* misfortune, *not our own.*

Before we leave the Moscow exhibition, held in one of the Imperial arsenals there, we beg our readers to look at those pears and those grapes. Hothouse growth to be sure. But don't they look as it taken off this very morning? "Certainly." Well, they are nine and ten months old. The fact is, such fruit is so rare, and so valuable, and so expensive that the clever Russians have found out the best way to preserve them, and long before Nyce was heard of. And when we get our *All the World's Horticultural Exhibition*, to be held in Richmond, Virginia, before many years, we hope our good neighbors, the Russians, will tell us all about how to preserve fruit.

PRUNING FRUIT TREES.

BY "C.," NEW YORK.

I find, in most of the agricultural journals of the present day, advice freely given to prune orchards in the month of March.

This, I presume, arises from a custom handed down to us from our fathers, which "is better, however, in its breach, than in its observance;" originating from the fact that pruning was a necessity, and that March was the best month, as the farmer had more time at that particular period, and other out-door work could not then be well or profitably done.

But my experience and observation has shown me that June, of all months, is preferable for the pruning of fruit trees; that when pruned in this month the limbs heal over more readily and

quickly, leaving no unsightly ends of limbs partially covered with new bark, as is too generally the case with March pruning. And further, requiring no solution of gum or other substances to cover the limbs, as is required and advised by those who prune in March.

There is *a something* about a tree and its *circulation of sap* in the month of June, (of which in a future remark) that evidently *fits the tree for pruning;* for it is not generally known, that during a certain portion of this month the bark may be *entirely stripped* from the trunk of a tree, with *entire impunity*, and a *new bark* will be found, without the *wilting of a leaf* or the *dropping of any fruit.*

And if any of your readers have any old apple trees that refuse to bear any thing but knotty or gnarly fruit, will, upon any of the three longest days of the year, (the 20th, 21st and 22d day of June,) with a drawing knife, or any other sharp instrument, cut through the bark of an old apple tree, and raise the bark, so that they can insert their fingers, and strip off the bark (for it then easily runs) as far up as they can, and as low down as it will peel, they will find that a new bark will have formed within sixty days with no injury to the tree, and without the wilting of a leaf or the loss of any fruit.

In my own experience the effect of this plan has been to secure in old trees, a crop of fair and handsome fruit, which, before, had proved to be knotty and gnarly, and in some varieties of apples which had, of late years, *apparently run out*, for instance, the Rhode Island Greening, by this course have yielded crops of large and fair apples, *which keep good during the winter*, and while the same trees, prior thereto, yielded a small crop of unmarketable fruit, and they even rotted upon the trees before gathering.

[We have noted this fact before in the *Monthly*. We do not know that this date will do for all sections, and care must be exercised to be sure of the proper time.

PURPLE AND WEEPING BEECHES.

W. C. STRONG, BRIGHTON, MASS.

In the June number of the *Monthly* your esteemed correspondent, Mr. P. J. Berckman's, expressed the opinion that the seedlings of *Fagus purpurea* can be relied upon as coming true to the parent tree. He also says that in extensive sowings which he made while living in Belgium, "the green-leaved seedlings were, more probably, offsprings from nuts of the common green variety, accidentally mixed with the others."

Both theory and experience would lead me to differ from this conclusion. Why should Beeches be an exception to Nature's law of change? We expect that children will *resemble* their parents and that the more distinct the peculiarities of the parent the more distinct and marked will be the variations of the offspring. For example, it is less probable that a pear of the highest known excellence will produce a seedling of fully equal merit and close resemblance, than it is that a poor pear will, apparently, reproduce itself. Still the results from the former experiment will be of a much higher type at the same time that the eccentricities are more marked.

The law of resemblance is noticeable, however, in the reproduction of every form of life. Other things being equal, the human parent of marked superiority of intellect may reasonably expect a corresponding superiority in his progeny. Yet, while there is this law of resemblance, it it also true that, with marked excellence, the shades of difference are more marked and absolute. We should expect this result from the blending of superior excellencies in father and mother. So, also, in the hybridizing of plants, distinct peculiarities in the parents will almost invariably give distinct and striking results. Even in a monœcious tree like the Beech, when an individual, like this *purpurea*, has varied from its normal condition and become a distinct species, we may reasonably suppose that, while there is no hybridizing, the seedlings will bear a strong resemblance to the parent tree.

Yet we should also expect to notice a tendency to return to the original type. I think this is precisely what I have noticed, and what Mr. Berckmans also has noticed, but attributes to a different cause, viz:—the accidental mixing of chance seedlings of the common Beech. My experience has been that there are many shades of color in seedlings of F. purpurea, some of them being, perhaps, darker than the parent,—"almost black" as Mr. B. himself testifies.

On the other hand, I have found it necessary to go through the rows and mark many as "copper," and some as "rejected." I have no reason to believe that the last class were 'accidental mixtures,' for they almost always give some indications as being wayward descendants from the purpurea. They are sporting back in the opposite direction from their parent.

So far from being surprised at this variation, I think the wonder is that the type is so well preserved. Indeed, I think that careful experiment would indicate, in all departments of life, wherever

yet be distinguishable. Throughout the animal and vegetable kingdom we notice unceasing changes,—giving individuality to every department in a surprising degree. As an important rule, we notice advances have been made and favorable circumstances can be maintained, that Nature will cherish and assist in perpetuating and improving upon her every effort.

Doubtless we shall find many individual instances of return to a lower type; but it is equally true that superior excellencies may also be developed. By sowing the seed of the Bartlett pear we may not be able to mark and sell the seedlings as Bartletts; but, if the seed were well-selected, we may count upon a surprising number of really good pears. Mr. Dana, of Roxbury, Mass., for example, has sown a small quantity of good pear seed, and he has produced, *as a rule*, seedlings of superior excellence,—several of which are better than any one of the thousands of Van Mons, obtained by taking Nature at her lowest stage. Clearly, the analogous law, so palpable in the animal kingdom as to be recognized and practiced upon by all good breeders, should also be applied to the vegetable world. Experiment with Nature's best products and never doubt you will be prospered in your efforts.

A noble specimen of this lusus naturæ, the purple Beech, is now standing on the grounds of Mr. John A. Kendrick, in Newton, Mass. The tree was planted by Mr. Kendrick, in 1834, and is, consequently, 33 years planted, or probably 37 years old, being about 4 years old when imported. It has now attained a height of 40 feet, with a head of fine symmetry—the wide spreading branches measuring a diameter of 23 feet. At 6 feet from the ground the trunk measures a circumference of 4 ft., 11 in., at which point the branches begin to diverge. Surrounded as it is by every shade of green, the tree is a magnificent contrast—filling the eye with delight. In the early summer the young growth has all the richness of young trees. But the inner foliage and the extremities also, later in the season, lose the rich depth of color. For this reason, Mr. Kendrick is inclined to call it the Copper Beech. Yet this is a peculiarity which we notice even in young trees, and should expect to find increasing with age. It is an invariable rule that vigor of growth increases the depth of color.

Doubtless, there are many shades of color in the seedlings of this variety; but the true purpurea may often pass for cuprea for want of a few shovelsful of manure. While enjoying the rare beauty of several of these purple specimens, mingling with the foliage of other trees and glistening in all the freshness of a June morning, it was easy to notice that the limit for these trees might easily be overstepped. Give them a preponderating effect, and how quickly would the tone become heavy and gloomy.

In spite of the length of this paper, I cannot forbear to notice a remarkable specimen of this Beech family, standing about 75 feet from the tree above-described,—a *Fagus pendula*,—also planted in the year 1834. Though its habit is remarkably pendulous, yet it has preserved a single, upright leader until within the last two years. The circumference of the trunk, 3 feet from the ground, is now 3 feet, 1 inch, and the height is about 40 feet. From the ground to the extreme top of this straight trunk branches are regularly thrown off, which incline downwards with perfect symmetry. The longest branches are about 26 feet long, starting from the trunk about mid way up and reaching to the ground. The base of this lower is 20 feet on the ground, the longest branches being 10 ft. from the trunk as they reach the ground.

It seems almost incredible that the sap could have ascended the upright stem, according to common law, and then taken a reverse direction down the branches with such uniform regularity and grace. Yet the growth and form of this tree is all natural and perfectly healthy, not in the least caused by the weight of the branches, but simply because the nature of the branches is directly downwards. Who, by searching, can find out the hidden springs of life?

UNFERTILE BLOSSOMS ON DWARF PEAR TREES.

BY DR. J. S. HOUGHTON, PHILA.

About one year ago I called the attention of the readers of the *Monthly* to the unfertile character of the blossoms on certain pear trees, which annually exhibit a great profusion of flowers, and yet produce but little, if any, fruit. I inquired what was the cause of the barrenness of the blossoms, and suggested that the botanical structure of the flowers ought to be examined by competent persons, in order to ascertain wherein they were defective. The particular variety of the pear to which attention was called as unfruitful, even after being covered with blossoms, was the *Duchesse d'Angouleme*, on Quince stock.

I am happy to say that the proposed investigation into the botanical condition of the blossoms, was made, about the first of May last, by several skilful botanists, on my grounds, and part of the report will now be presented to the public.

At the time of the examination there were several thousand Duchesse trees, eight, ten and twelve years old, in full bloom, in close proximity to other varieties which are not so unfertile. The Duchesse trees were what gardeners call "one sheet of bloom." The opinion of all present seemed to be, that so much "bloom" must be very exhaustive.

Mr. THOS. P. JAMES, Botanist of the Pennsylvania Horticultural Society, examined the flowers very carefully with strong lenses, and said they were (as compared with flowers of other varieties) very weak in their organization, although apparently perfectly hermaphrodite; that the stigmas were evidently feeble, the pollen limited in quantity, and the entire flowers in a low state of vitality.

The season was very unfavorable—cold and wet—but the flowers examined had not, at that time, been seriously injured.

A large quantity of the Duchesse blossoms were examined very minutely by Prof. HORATIO C. WOOD, Lecturer on Botany in the University of Pennsylvania, under the microscope, and I have much pleasure in appending his very acute observations upon this deeply interesting subject. I trust that pomologists will not let the matter stop here, but that they will discuss the best method of avoiding an excess of weak flowers on fruit trees,—or, rather, the best means of producing a proper quantity of strong, well-organized and well developed fruitful blosssoms.

PROF. WOOD'S REPORT.

I have examined the blossoms of the Duchesse d'Angouleme pear. They are certainly *sexually perfect*, with both the male and female organs apparently normal to the naked eye: but with the microscope I find both the gynæcium and andræcium (to use a medical phrase) suffering from general debility. Thus, the anther cells, externally, appear to be well developed, large and finely formed; but they contain scarcely one-third as much pollen as similar organs of more fruitful varieties. It seems to me, further, that the pollen grains themselves are not so well developed, nor so crowded with granules or fovillæ. In the same way the female organs are defectively organized. For instance, the stigmas are not so large, and the little papillæ, which secrete the so-called stigmatic fluid, are not nearly so numerous, nor pronounced as in the flowers of neighboring trees.

In my own mind there is not much doubt but that these evident marks of the want of vigorous sexual development have a deeper meaning than appears at first glance. What if there are comparatively few pollen grains? Providence has so provided that the great mass of the pollen is superfluous, and ordinarily is wasted. Surely the mere absence of a part of this superfluity would not produce the barrenness you complain of. It seems to me highly probable that the appreciable want of *strength* is associated with a similar, but less apparent, degradation as regards *quality;* and that there is a consequent want of power in the germinal matter, both of the pollen and ovary, which is the real cause of the sterility. If this explanation be not the correct one, I know of no other.

Having thus made a diagnosis in the case, the next step is, if possible, to discover the *cause* of the condition, so as to remedy it, if practicable. Is it not probable that the source of the trouble is to be found in the *excessive production of blossoms*, which this variety of pear is notoriously addicted to? Of all the various life-functions of the plant, the process of seed-producing is, *par excellence*, the exhaustive one. It is well known how it often cripples, or even kills, a previously vigorous tree. Further, the period during the reproductive process, the worst for the plant, in which it eats up its life-capital fastest, is that in which the blossoms are perfected, the pollen shed, and the ovule impregnated.

The reasons for this are obviously two-fold. In the first place, the production of very highly-vitalized matter rapidly exhausts both the plant and the animal. Thus the consequences of an excessive production of semen in the animal are notorious. Now it is at the period alluded to that we have the greatest elaboration of costly products in the flower. Not only are the ovaries, with their contained ovules, and the anthers with their myriad pollen grains, rapidly developing, but the sepals and petals, with their numerous oil glands, are aiding in the prodigal waste of the strength the plant, mayhap, has been years in obtaining. It is readily seen that after impregnation, during the slow, gradual production of the fruit and seed, we have no such sudden burst of life activity.

Again, at this period, there is, probably, the greatest loss of nitrogenized principles that occurs during the life of the plant. When the leaves are about to die their nitrogenized contents return to the stem and roots, showing the great value to the plant of these principles. The seeds, to be sure, contain much nitrogenized material; but then there are comparatively few of them perfected. Not so with the pollen. You can often see it, almost, making little clouds in the air, or dusting thickly the surface of ditches with its countless granules, and each of these is literally gorged with the most highly vitalized nitrogenous material the plant can

produce. Surely then there is evident cause for the exhaustion of flowering, especially when we take into consideration the rapidity of the process as compared with the length of time through which the seed is perfecting. That the blossoming is very exhaustive, that in it are expended most rapidly the life-forces of the plant, we have numerous proofs. Thus the effects of profuse flowering on very young trees is well known.

Further, in the flower we have a rapid oxidization of carbon, or in other words, a destruction of the bone and sinew of the plant; which is proven not merely by the evolution of carbonic acid gas, and the taking-in of oxygen by the blossoms, but by the *heat* given off from the flowers,—an indisputable proof that there is a more or less rapid burning up of carbon in the flowers themselves, strengthened as it is by the interesting results of the experiments of Garreau, Vrolik and De Vriese. Thus, the latter Savans found that the increase of temperature was much more marked when the plant blossom was placed in oxygen, than when it was in the air, and that all evolution of heat ceases when it was placed in nitrogen or carbonic acid,—or in other words when it was deprived of oxygen; while M. Garreau showed that the well-known periodical increase and decrease of temperature in the blossom was accompanied by a similar increase and decrease in the amount of carbonic acid evolved.

The rapid absorption of cold water by the root from the soil, the constant evaporation from the foliage, the facility of radiation and conduction from the wide spread open blossoms, with various co-acting circumstances, cause so rapid a loss of heat from ordinary flowers that the increase of temperature is only sensible to the very delicate instruments, such as the thermo-electric pile; but when there is a mass of flowers on a dense spike or spadix, shut up as it were in a spathe, the heat developed is more marked. Thus, in some of tropical arums, a difference of 10 or 12° has been noted between the outer air and the immediate vicinity of the flowers.

To sum up, in conclusion, it seems most probable that *weakness* of the sexual organs is the cause of the sterilty of the Duchesse, and that this weakness is dependent upon *excessive blossoming*. If this be so, the indication is evidently to check this excessive flowering. Of the best practical way of meeting such indication, it would be presumption in me to offer you any suggestion.

SULPHUR ON GRAPES.

BY MR. GEORGE THOMPSON, CLEVELAND, TENN.

I did not intend to reply to Mr. Miller, of Newark, N. J., but he appears determined that I shall. I wrote to you, giving my experience with sulphur in preventing mildew, and red spider on grape vines. I neglected to state that it was a cold grapery that I had reference to, and although Mr. Miller finds it so easy to grow superior grapes without sulphur, there are a great many grape-growers that cannot accomplish that feat in a cold house, neither do I think he can; and if he can, what does it profit the readers of the *Monthly*, unless he gives us his mode of practice. In his two letters there is not one word that we could get instruction from. What was the use of them? There was nothing but sounding Mr. Miller's praises from first to last; and I think ought to be paid for as advertisements. And, Mr. Editor, I think if you will make enquiries of the owners of all the cold graperies you are acquainted with, you will find that they have difficulty in growing grapes, either from red spider or mildew, unless they use plenty of sulphur.

I was called on to examine two cold graperies last summer, and the evil in both cases was mildew, and you must remember that more than half of the owners of cold graperies do not keep gardeners, so that the fling at Mushroom Gardeners was uncalled for; and besides if a gentleman choose to employ a man to milk his cows, and take care of his horses, and work in his garden, and then call him his gardener, that is none of our business; for it is well known that he can always have his choice between different classes of gardeners; for my part I am tired of listening to the complaints of professional gardeners, against what they call mushroom gardeners; let every man stand or fall on his own merits. I think, Mr. Editor, you settled that question last year in one of your leaders. In this connection I may also state that some of the leading Horticulturists around Cincinnati are not what you may call "blue apron" gardeners, never served an aprenticeship, but commenced after spending years at other business, and some of the best places near Cincinnati are filled by men who never worked a day in a gentleman's garden in Europe and stepped into the place when first-class gardeners left.

[There is much force in Mr. Thompson's remarks, being himself one of the best professional gardeners in the United States, he is able to comprehend the question from a practical point of view. In regard to the sulphur question, the gardener who never has occasion to use it is a favored man. Mildew is not the result of bad management in a great many

cases, but a parasitic growth over which in many instances, the best gardeners have no control. In such instances the use of sulphur is a necessity, and when a gardener knows that it may come in spite of all his knowledge, it is wise in him to be before hand, and by its judicious use prevent what *may* happen, by putting sulphur about where it may prevent the mildews appearance.

Also is Mr. Thompson right about the value of that numerous class of gardeners and coachmen, who fill a sphere of great usefulness. There are times when it is annoying to a first-class gardener to be compared with one of small talents, but this is not the fault of inferior gardeners, but of the employer, who is ignorant of the difference between first-class and third rate gardeners. Professional gardeners have it in their own power to show the difference in their abilities. The others are just as useful, by filling positions gardeners of great ability would not like to fill.

The profession of a gardener is not alone in this annoyance, the lawyer, physician, and all others have the same trouble; but as our correspondent well remarks, if what the profession considers inferior talent suit an employer's views and purse better than any other, he has the perfect right to employ them.—Ed.]

CULTIVATED FRUITS, THEIR USES, ABUSES AND SUCCESSIONS.

BY WALTER ELDER, PHILA.

There is such an intense desire in the human mind, to get fruits in their season, that those who cannot buy them will steal them. There is no other product of the garden or field that so much excites our appetites or pleases our palates so well. as well ripened fruits; and yet, strange to state, many families who have fertile lands and other facilities for growing them, neglect to set out trees and bushes to bear them for the benefit of their own health.

Skilful physicians all tell us, that cultivated fruits, when fully matured, contain vital essences essential for the preservation of our health and prolongation of our lives, especially adapted to their natural seasons of ripening. From a knowledge of that, chemists extracted their juices and preserved them for medicines, by a process of their own, and found them to be real *Panaceas;* but unprincipled men, for avarice sake, took up the trade, and, by adulteration and over fermentation, made the life giving juices into health destroyers and men-slayers. Their *Wines* create unnatural mirth and gladness, then sting with remorse and sorrow; *Whiskies* stimulate courage and strength, then smite with weakness and fear; *Brandies* arouse daring and boldness, and then afflict with dejection and horror: *Vinegar* serves as a condiment to some kinds of green vegetables, but is a poison by itself. The foolish think excess in their use gives glory and honor; the wise can only see in that, shame and reproach.

It would seem as if it were the peculiar privilege of woman, with purity of mind and affection for man, to be a practical protest against this abuse of fruits—for few women engage in the manufacture of fruits into liquors, but engage in fruit preserving in many ways, by stewing the juices of fruits with sugar and sealing them up tight against fermentation; by stewing in bulk, and, in th se latter times, by drying process; and she has succeeded with them all. The origin of all the various modes of preserving fruits for table use belongs to woman; so, when we partake of the delicacies, we should feel grateful to her alone.

We do not wish to be considered *fanatical*, for the moderate use of *pure wines*, made from Catawba, Concord and other choice grapes is often beneficial, we think; and with *pure ciders*, made from good, sound apples, but not from rotten trash.

The following synopsis of fruits may serve the inexperienced, as an index to their successions of ripening. *Strawberries* lead the van, luscious and rich, favorites with all; *Cherries* and *Raspberries* come next, with sweetness and strength; *Blackberries* follow, most delicious and pleasing; *Gooseberries* and *Currants* come in good time, both favorites with ladies, *Apricots*, *Peaches* and *Plums* keep up the succession, with virtues of their own; *Cranberries* in winter assist the digestion and make us feel well; *Apples*, *Pears* and *Nuts* we have nine months of the year. So we can have fruits all the year through, from open air culture.

IMPROVEMENT IN GREENHOUSE STRUCTURES.

BY PETER HENDERSON.

In the May number of the *Gardener's Monthly*, Mr. Robert Buist, Sr., of Philadelphia, in a very harsh and fault-finding article, endeavors to place me before your readers in a not very enviable light.

His strictures are as unjust as his manner of making them is unfriendly. In the first place he insinuates that I have assumed to be the originator of the ridge and furrow system of greenhouses now so generally in use. I certainly believe I was the first to call attention to their merits, in this country, through the pages of the *Monthly*, but while so doing I disclaim all merit of originating the system. But though far from being the originator of the

idea, I still claim the merit,—and a great deal of merit I believe it to be, of giving it the extended publicity it has had.

I think it was in 1862 that I first called attention to the subject, detailing the success of some small houses that I had so built for trial. Since that time, several large establishments have been remodeled after this plan, and scores of new ones have adopted it. At least half a dozen of these already rival, in extent, the primitive structures of Mr. Buist, at which he has been cobbling for the last 40 years, nearly.

Whether the system of ridge and furrow is a "stale" one, as Mr. Buist elegantly puts it, is a matter to question. I contend that it is not, and that its very general adop ion in this country and in Europe has been only during the last 4 or 5 years.

The idea, no doubt, was mainly promulgated from Sir J seph Paxton's erection of the Crystal Palace in 1856 (?). I visited the leading florists' establishmsnts, in London, in 1857, and it was certainly not then in use. But in 1863 Low & Co., of Clapton, erec ed 12; and when a friend of mine saw them there two years after they spoke of their plan as new, and were unbounded in its praise.

Whether this system was in use in 1821 at Edmonston, in Scotland, I cannot dispute with Mr. Buist, as I was not much around about that time; but this much I do know, that my 'prentice days, from 1839 to 1843 were spent but a few miles from this same Edmonston, and at that time all the glass on the place might have been carried on a wheelbarrow, and no doubt it had been gradually growing from Mr. Buist's time. "Our pla." was not copied from there.

Mr. Buist charges me with a very mean action—a very serious offence. He says in effect that he has been "credibly informed" that I adopted the ridge and furrow system from seeing that of Mr. Bisset of Philadelphia, and then claimed it as my own, robbing Mr. Bisset of his prior right of the plan.

If Mr. Buist had not seen my establishment and that of his friend Mr. Bisset, I would have been charitable enough to suppose that he had been ignorant of the facts of the case and had been deceived by his "credible information. But he knows just as well as I do that Mr. Bisset's houses *are not built on the ridge and furrow system at all*, but that each stands clear and singly by itself, with a 2 or 3 feet space between, at least such was the case when I saw them after he had them finished in 1863 (I think,) which was one or two years *after* I had built my experimental houses on this plan at Jersey City. On conversation with Mr. Bisset, at that time, I told him that I thought he had made a great mistake in not connecting them, but he could not see it, and very likely does not yet.

In alluding further to what I call Greenhouses, and what he deprecatingly calls "pits," Mr. Buist makes statements equally erroneous. He says they are 9 feet wide, and sunk from 1 to 3 feet in the ground. They are exactly 11 feet wide, and are, in all cases, unless under special circumstances, level with the ground.

He boasts that a table of one of his Philadelphia houses holds more plants than one of my greenhouses. The Great Eastern is a pretty big ship, but she has not proved very profitable to her owners.—And if Mr. Buist chooses to concentrate the space of his whole greenhouse on one table, he is not likely to be annoyed by imitators.

He also discovers, in his fault-finding vein, that I have made a serious mistake in having my hot-water connections in my shed instead of inside the greenhouse. Did it not occur to the gentleman that this "blunder" might be an intentional one, and that these sheds, while packing, were as necessary to be kept from freezing as a greenhouse? and when not wanted for that purpose, that the hay wrappings preserved the heat for the greenhouses?

Mr. Buist says that these houses "are everywhere in use." I think I could challenge him to name a single instance where they were so used until allusion was made by me to the matter in the *Monthly*, in 1862. Prior to that, Messrs. Parsons & Co., of Flushing, L. I., had two houses so joined; but I doubt much if there were any at that time about Philadelphia, as I doubt if there are many to-day. I rather think Mr. Buist has not yet appreciated this "modern improvement" sufficiently to adopt it. One would think that a lesson received at so early a da e as 1821 would not have been thrown away; and that when describing the different systems of erecting greenhouses in his writings, he would not have omitted this.

HELIOTROPE.—Strike cuttings in August; the following spring select the strongest plants and pot into five-inch pots, and as they grow pinch back the shoots most determinedly to lay the foundation for well-shaped plants. In June pot into nine-inch pots; place out of doors, and frequently water overhead. By beginning of September they will be good specimens to take in for flowering all the autumn and spring. Old plants, if cut back and watered with liquid manure, will produce several crops of flowers during the season.—*Gar. Weekly.*

The Gardener's Monthly.

PHILADELPHIA, JULY, 1867.

☞ All Communications for the Editor should be addressed, "THOMAS MEEHAN, Germantown, Philadelphia," and Business Letters directed to "W. G. P. BRINCKLOE, Box Philadelphia."

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MAKING LAWNS.

We recently saw a letter of Mr. H. W. Sargent, now travelling in Europe, to a friend in this country, in which he expresses disappointment at the appearance of the lawns there and his increased estimation of our own.

There is no doubt but that we have progressed considerably in the art of making this—the great feature of a first-class garden—and that Mr. Sargent, who has been himself conspicuous for the attention given to the improvement of American lawns, and whose own at Wodenethe has been the theme of many well merited newspaper articles, should have a reason to feel satisfied with our attempts, is cause for much encouragement.

We have so often recently had to refer to the great harm done to American Horticulture by the rehashes of foreign books, that we need only now say that in this matter of lawn making alone we have suffered immensely, — so long as we sowed the crested dog-tail, the vernal, and the fesques, generally recommended, we could have no lawn in summer; for, adapted only to cool and moist climates, they soon dried up under our summer sun; yet we find to this day writers following in the old track and recommend such rubbish.

The best mixture for a lawn in most parts of the United States is about one-third rye grass (*Lolium perenne*) and two-thirds green or as it is sometimes called Kentucky blue grass(*Poa pratensis*); by itself, the rye grass will not stand close mowing, the sun burns it out, with the othe it stands well, and gives a live glittery appearance to a lawn, no other grass will. For lawns which are to be machine mowed, Red-top (*Agrostis rubra*) is an admirable grass,as it will bear lower cropping, without injury, than any other.

In preparing land for a lawn, sub-soiling is of much value, for a loose sub-soil never gets so dry as one hard pan will.

In sowing in September or October it is an excellent plan to add oats or rye, but the last is not so good as oats. The object is to afford a little shade to the grass, to keep it from thawing until the spring season naturally comes, otherwise it would be "thrown out" by continual freezings and thawings through the winter season.

Because the oat renders such good service to fall-sown grass, there are some whose imitative faculties are out of all proportion to their reflective ones, and who recommend to sow oats also with lawn grass in spring; no sensible gardener falls into this error. In the spring he sows grass entirely by itself.

Now there are two *principles* which are never thought of in lawn management by the best of lawnist, and yet are of great practical importance. One is that the roots of grass only penetrate the soil to about the depth that the plant extends in height, and the other is that continual cutting of green leaves weakens vitality.

So that practically if we let grass grow a foot high its roots may penetrate a foot deep, but if we keep it cut down to a few inches, the roots will seldom go deeper down than that. The value of this principle is that when we wish a young lawn go deeply down with its roots, we *let it grow as much as it will*, and one of the best ways of renovating a worn out lawn is, to let it grow longer than it has been permitted to do. We are often asked how to make grass grow in shady places, what manure is best under such circumstances? And people seem suprised when we tell them the best manure is to let the grass grow without cutting it.

So newly sown lawns should not be cut very early the first year. The object should only be to cut low enough to keep down oats, weeds, or anything that may grow stronger than the grass; for remember, amongst the vegetation on a lawn there is a continual *struggle* for *existence*, and that the strongest ultimately prevails over the weaker forms, and crowd them out. This principle is well illustrated in lawns kept closely mowed by machinery, small *spergulas*, *veronicas*, *arenarias*, &c., which could not live in long grass for want of light and air, get a chance afforded them by the grass being kept in check, and they thus get strong enough to often kill out the weakened grass altogether.

It will thus be seen that to make American lawns rival the famed ones of Europe, all that is necessary is a proper selection of varieties, a deep cool soil, and a regard to the *depth of the roots*, which is readily controlled by judicious mowing, according as circumstances require it.

WILSON'S EARLY BLACKBERRY.

At a discussional meeting of the Pennsylvania Horticultural Society last year, it was suggested that this Blackberry might possibly be a hybrid between the common High Bush Blackberrry (*Rubus villosus*) and the Dewberry, (*R. Canadensis*). We have now had an opportunity of examining it critically, and it is really a very remarkable form of the Blackberry family.

The specimens we have, were kindly presented to us a couple of years ago, by Mr. John S. Collins, of Moorestown, and we planted them where they could remain to grow as naturally as possible, and at the same time compare with other cultivated varieties. To day (June 1st.) the first flowers are open, and the Dewberry opens precisely at the same time. This indicates its affinity with the dewberry, for, although the variety of Dorchester will soon be in flower, High bush Blackberries will not be in bloom for a couple of weeks or more. The manner of flowering is also just the same as the dewberry, which is to have but few flowers on a truss. The terminal flower of the truss or panicle has but a very short pedical, the next a little longer, and so on to the last, which has the longest stem of all, all of which is the characteristic of the dewberry. Then the secondary growth (for we suppose every one knows that the blackberries have a spring and autumn growth different from one another,) is precisely that of the Dewberry, namely, long slender surface runners, reaching ten or fifteen feet and rooting at last at the tip. But the spring or upright growth of Wilson's early is of the character of *R. villosus*, deeply grooved (striate) leaves in the fives (quinate), and covered with soft hairs, (villose) which is all foreign to the R. Canadensis or dewberry.

We have no doubt in Europe where the belief in the innate powers of plants to grow in form, as well as in regular structure is not so far advanced as it is in this country, we think this plant would be *assumed* to be a "hybrid." The wisest plan for us is to form no opinion whether it is a development or a hybrid, until we can ascertain some facts to prove it one way or the other. Certainly the exact intermixture of the characters of the two species in one is a very curious fact in Botanical Science and in the Science of Pomology, and is worthy of much future observation.

One interesting point which may lean one rather to favor the idea that the plant is a vigorous development of its own inherent nature, rather than a hybrid, is a tendency to produce semi-double flowers, a result which would not necessarily follow from mere hybridization. We give an engraving of a semi-double flower of Wilson's Early, from the plants above-referred to, wherein almost all the stamens have been replaced by petals.



This, moreover, is a matter which may make much trouble to the practical man in the future, for if many flowers loose their stamens in this way, there will be a deficiency in pollen, and a short crop will ensue. Propagators should increase their stock only from such plants as have as nearly single or five petaled flowers as possible.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

"Pruning," before the Horticultural Society.—*Dr. Stayman, of Leavenworth*, says:—

"I was much interested in the comments made by the Society, I think they would not differ so much on pruning or shortening-in, in transplanting, if they fully understood my views, although I endeavored to make the subject plain, but would not fully discuss it in a short article. I do not advocate the mutilation of the roots, and then expect to overcome the difficulty by shortening-in. The question is simply this, does a tree require *shortening-in* that has been taken up and transplanted with care? Not to what extent a tree may be mutilated and then saved by another similar process; all such trees I discard as unworthy transplanting unless simply to save the variety.

I feel thankful for the compliments passed upon the article from so worthy a Society, and all I regret is that I was not able to present the matter in a better and more definite form."

[There are many points suggested by Dr. Stayman's notes, worthy of a much fuller discussion than has yet been accorded them.]

Bees on Wisterias.—*Apis.*—"In past years I have noticed hundreds of the large Bumble Bee dead under the flowers of the W. sinensis, and have taken it for granted that the flowers poisoned the Bees. But this year, though the bees have been as numerous as ever, I have not found a single dead bee. How is this to be accounted for?"

[We do not know. We have often seen dead bees by the hundred under Wisterias, but do not suppose the flowers killed them. We have read that the honey of some parts of the world, Trebizond for instance, is poisonous; which, although given on "good authority" we do not believe; but if poisonous, it does not seem to poison the bees that collect it, and we do not know why honey which is not poison should kill our bees.]

Retinospora ericoides.—*A correspondent at West Fayette, Seneca Co., N. Y.*, asks: "I would like to enquire through the *Monthly* if Retinospora ericoides and Juniperus ericoides are one and the same thing. I have seen the same plants under the above names, at different times and all were genuine Retinosporas, and wish to know whether the other names are synonyms, falsely or not, or whether there are distinct plants for each. While young at any rate, it is not hardy here, although it barely lives through the winter."

[They are all the same thing.]

Blighted Seckels.—*G. S. C., West Fayette, N. Y.*, says: "In the April No. of the *Monthly*, *C.* asks, Did any body ever know of a blighted Seckel. I have an experimental orchard of pear trees numbering some 150 varieties, and the pear blight has made considerable ravages for the past two years, the Seckel not escaping, but being attacked and fatally too, as bad as any other. My location is on the east bank of Seneca Lake, about 8 miles from Geneva."

Rhododendron Seed.—*F. L. P., Canandaigua, N. Y.*—Please let me know if it is necessary to soak Rhododendron seed in order to have it come up. I planted some one month ago and it dont make its appearance yet.

[Sow in a box of sandy soil, on the surface, cover thinly with moss, and set in the shade. It takes six weeks to germinate.]

English Sparrows in New York.—*Mr. Isaac Buchanan*, says:—"English Sparrows are quite domesticated and perfectly able to bear our winters in New York, Hoboken, Jersey City—I cannot say for Lewellyn Park, but think most likely. I have tried to locate them in Astoria, but have not yet succeeded."

Covering Roses in Winter with Sods.—*T. Madison, Wisconsin*, asks: "Is it a good plan to cover Roses in winter with sods? I read in some periodical that Mr. Peter Henderson recommended this, and have by following the plan lost more roses than ever before."

[One of the best ways we know is to cut away late in the season any immature shoots, and after the ground has been a little frozen, cover with fine brush wood or leaves, and on this brush wood or leaves, put a few spades full of earth banked, so as to throw off the water. We have seen roses keep very well buried entirely in earth or sods, but the shoots must *be ripe*. If green they rot and this communicates to the whole plant.]

Iona and Delaware Grapes.—*A correspondent from North Bridgewater, Mass.*, writes: "With me, the Iona grape is a *perfect failure*. The Dela-

ware too, loses its leaves a month sooner than it ought. It occurs every year; does this happen in Philadelphia? The Roger's Hybrids on the whole are the best grapes I have, both as regards, hardiness, vigor and quality of fruit, No. 3 I think the best, as prolific as the Delaware, it is more than twice as large and to my taste quite as good."

[Within the last ten years, we are sure $40,000, has been spent on Delaware grapes, within a circle of ten miles of us, but we doubt whether the offer of $40,000 next fall, for 40 bushels of Delaware grapes from the district would produce them. Very much money has been spent also on Iona, and we are sorry to say with not much promise so far.]

Names of Plants.—*Hingham, Mass.*—The numbers have mostly got loose from the the names. 3 is Neirembergia gracilis, 4 Polygala oppositifolia, 2 Ardisia crenulata.

Paw paw.—*P.*—We do not know any authority for this orthography. The *papaw* of the West Indes is *Carica papaya*, and the fruit of our North American plant *Anona* or *Porcelia triloba*, has in some way been connected with this and hence its name. It is *Papaw*, not Paw paw. But why not write to the journal wherein the term is used? It is none of our business.

New Roses at the South.—*Mr. Berckmans, Augusta, Ga.*, writes: "*Imperatrice Eugenie*, (Hybrids remontant of 1866,) is a hybrid, showing trace of Bourbons, but the Noisette predominates; it is an exquisite flower, b. autifully cupped, with center petals anemone form, of a fresh blush white and very free bloomer.

Abraham Lincoln, is the darkest flower yet introduced, its form is globular and is of a very dark carmine maroon, shaded purple. At first it has some resemblance to Arthur de Sansal, but it differs in form; the latter being a flat, imbricated flower, and several shades. *Mme. Emile Bogua* is a very large, well made flower of a delicate waxy blush. *Bertha Lerique* is very large and full, somewhat in the style of Caroline de Sansal of which I should take it to be a seedling. *Comte Alphonse de Seringe* is a seedling of Gen. Jaequeminot of a very fresh dark lilac pink and quite distinct; but I must stop this rambling letter. If you wou'd like some notes on the best new roses, I will give them with pleasure.

Oranges in East Florida—*A New York Correspondent* says: "I have just returned from Florida. What a splendid climate it is. 60° at 7 A. M., and 75° to 80° at noon, in March. The transition from New York in January, with its piles of snow and ice, was infinitely delightful, the return supremely horrible, and came near using me up.

"It would only make your mouth water if I was to describe the oranges of East Florida, therefore I refrain. But it is a fact, we don't know here, at the North, what a perfect orange is."

Winter or Summer Pruning—*An Illinois Correspondent* asks: "The different effects of winter and summer pruning seem to be understood.

Is it the same in root pruning? Will they, too, renew their growth more rapidly, if cut back, in winter than summer? I am very anxious to know."

Insects on the Tulip Tree—*K., Boston*, writes: "I have a large number of tulip trees which have been growing thrifty till within three or four years, since which they have been visited by a scaly kind of an insect about the size of what is commonly known as '*lady-bug.*' These insects are more *flat* however, and fasten themselves, in companies of hundreds generally, to the under side of the branches, and tho trees become completely coated with a substance as black as charcoal, giving them the appearance of having been painted with several coats of lamp-black, and then been thoroughly dusted over with soot. The trees are soon killed.

"I have noticed plants of snowball near by assuming the same appearance. By cutting the trees to the ground they throw up shoots that appear healthy for one or two years.

"I enclose a fragment of a branch, supposing it possible that it may be new to you, and two or three of last year's insects of *small size*, and shall feel much obliged by any suggestion that will enable me to get rid of the nuisance."

[We have seen this before. It is a species of coccus or scale insect, readily destroyed by syringing or washing with water impregnated with coal oil, or with common water heated to 140°.]

Peaches in Boston—*K.*—"The peach is so uncertain about Boston that for *family* use many are trying *pot* or *box* culture, and intending to house them in winter, in cellars.

"Now, will trees on Peach stocks answer equally well with those on plum stocks? Can you also inform me if peaches on *plum stocks* are liable to be attacked by the *yellows*, which has swept off almost all our peaches for the last twenty years.

"I am trying the experiment of training them horizontally near the ground, but my first experi-

ment came near being defeated by the mice, as I covered the trees with cedar boughs, which afforded them a very nice refuge in winter, the trees were very much injured by them.

"Now, knowing that you must be frequently beset by correspondents who spin long yarns needlessly, I owe you an apology for this long epistle, but relying on your patience and courtesy, I feel confident that you will excuse me."

[We do not object to long inquiries. Like to have them. It guides us as to what our friends want to know. In tubs peaches do as well on peach as on plums. A yellow, sickly leaf, but not *the* yellows, comes on peaches worked on the *Myrobalan* plum, not on others.]

Subscribing to the Gardener's Monthly.—Many prefer to commence their subscriptions from July instead of in January, and we hope our friends will do what they can to introduce the magazine to the notice of their friends who have not subscribed. We believe every horticulturist of note in the land already subscribes for it,—but there are always new horticulturists coming into the circle, and these we like to gather in with the rest of our readers.

The *Monthly* has taken no factitious means to extend its circulation. This could be made to represent an astonishing figure if we were to send to numbers who would never pay and never read, and thus be of no use to either publisher or advertiser. The *Monthly* is *sent to no one who does not pay for it in advance.* This is the great secret why the *Monthly* is so profitable to those who advertise in it. It is sustained by genuine horticulturists, *all* of whom are buyers; and we have no bad debts which must be made up by increased rate in advertising.

Hence, we can afford to give our readers *as much reading matter* for *two dollars* a year as others do for *three,* and the advertisers' bills are moderate in proportion.

As the season of fairs and exhibitions is approaching we hope our friends will take the opportunity to speak a word for us.

Forget-me-not—*R. B. S., Philadelphia.*—The specimen you send, bought in the market for "Forget-me-not," is *Polemonium reptans*, or Creeping Valerian, a native plant. The Forget-me-not of poetry is *Myosotis palustris*, which is a native of the continent of Europe,—Italy chiefly, and sparingly in England, and is nowhere naturalized in this country. Our wild kind is *M. laxa*, which is also common in England. The true Forget-me-not blooms all the spring and summer in a moist and partially shaded place, and is a beautiful ornament to the garden.

Names of Plants.—Some sneak thief walked out of our office with the editor's coat—not much matter to the reader, except that a bundle of "inquiries" was in one pocket, put aside for examination after sorting the mail. If any one do not find replies, will they please write again. A Virginia correspondent had some plants for name, of which we only remember that the orange flowered one was *Lithospermum hirsutum*, and the aster-like flower *Erigeron bellidifolium.* Correspondents should send better specimens for name—half an inch, or portions of flowers or leaves are difficult to determine.

Books, Catalogues, &c.

The American Grape Culture: Peter B. Mead. Published by the Harpers, New York. Philadelphia: J. B. Lippincott & Co.

The interest in the culture of American grapes has wholly developed itself within the last fifty years. Since then, more works have been written on it than on any other branch of fruit culture. Johnson of New Jersey, now sixty years ago was the first we believe to write on the subject; but it was not until 1828, when Major Adlum's treatise appeared, that what we may call modern grape culture dates itself. Spooner's book twenty years later did good service, but in '56 and '58 when Chorlton, Reemelin, and Allen's books appeared, that which is called the "Grape Fever" properly began. Then every one rushed to plant a vine, and there has been no abatement of interest in the matter from that time to now. Phin, Strong, and Fuller, have all had an useful influence, and now Mr. Mead follows with the present handsome work,—the most beautiful certainly of all the grape books, and we may say of any Horticultural work from the American press.

Of course it is not possible for Mr. Mead to say much that has not already been said on the subject. It has been discussed by Mr. Phin whether a piece of ground that will grow good corn, will not also bear good grapes. Mr. Mead takes up the argument in the same way, but adds that there are many soils that will not grow good corn, but which will bear good grapes, and this little illustration will give a good idea of what Mr. M. book is, namely a little farther growth or development of certain matters in grape culture, than others have reached.

The great feature of the book is the minuteness of detail in all things pertaining to pruning and training the vine. The Guyot system, the Thomery system, Quesnel system, and Charnaux system, are all given in full, besides the various modes in common practice.

In treating of "varieties," we think most fruit authors discover a weakness in some particular direction; and so enthusiastic and zealous a grape culturist as Mr. Mead cannot be expected to be free from it. His weakness is very evident. Isabella, has only a little space "between the skin and tough center that is really good to eat." Concord is "only one remove from a wild native," "in quality, bearing a close resemblance to Northern Muscadine.' Hartford Prolific has the 'usual tough acid center, little or no vinous flavor, but more sprightliness than Concord; Creveling, has the same degree of hardiness as the Isabella,' which we are told will not ripen in the New England States. It is less foxy and more sprightly than the other two, but as we infer from the whole of the remarks on it, not worth planting. Adirondac drops its leaves early, ripens imperfectly and gets winter killed. Ives' Seedling has no merit, but for wine purposes, and "attempts to make real wine from it must end in a small measure of success." The Catawba may "now very well be laid aside." The Diana has 'a peculiar animal odor,' which cannot be 'characterized without offending good taste,' but it gets more praise than some other. Allen's Hybrid is a real hybrid with the Catawba, but gets 'winter killed and mildews when exposed, but in places where shelter and ventilation are provided it is one of the best grapes we have.' The Union Village the more you eat the worse it is. The Rebecca sometimes does well but cannot be recommended. The Elsinburg is praised and seems to have no faults, but the Clinton has a tough acid center, and with the aid of sugar makes a poor wine. To Kalon to often mildews and rots. Taylor's Bullitt is about evenly balanced between praise and condemnation, as is also Miles. Roger's hybrids are no hybrids, none of them rise to the rank of first quality. Herbemont wont do for the north. The Lincoln seems to have no drawbacks, neither has Lenoir. The Norton's Virginia is all right, except a little tender in the north. Then we have a list of about fifty dismissed with brief descriptions. Brackett's Seedling, Diana Hamburg, Fancher, Saratoga, Walter, Martha, Dana's Seedling, and some fifteen others are spoken of, but we infer from the remarks made, that Mr. Mead does not think them worth planting.

The only grapes worth planting as far as we can understand Mr. Mead's book is, Israella, Iona, and "Dr. Grant's new seedling." The Israella seems to be absolute perfection in the "Isabella group." The Delaware is "hardy and vigorous," and has some good qualities,—"its small size, bunch too compact, and a small fibrous center being its only fault." The Iona has *six pages* devoted to its praises. The "hardiness of the vine," &c., &c., &c., &c., &c., &c., &c., &c., places it at the head of everything; and though nothing more seems to be desired, we have in a chapter on "new grapes" in which all are dismissed with from two to a dozen lines as indifferent,—a whole page describing an "excellent and entirely distinct grape," 'hardy,' 'early,' 'no foxiness,' 'tender,' 'melting,' 'sprightly,' 'vinous,' 'sweet,' 'abundant,' 'beautiful bloom' 'good size,' 'compact,' and a lot more, and more than this, about all of which it is intimated Dr. Grant will tell us more by and bye.

It will take strong evidence to satisfy us that this chapter has not been written on Iona Island, and entirely with the view of helping the trade interests of Dr. Grant,—which, if the auther conscientiously believes in the varieties, as he has written, may be considered, by some, a legitimate business transaction in its proper place; which, however, we think is not in a professedly *elementary* work like this.

Every one who knows the history of grape culture knows how temporary is a "good character" in a popular grape. In 1818 Nuttall wrote (Gen. page 143,) "There is, however, at the present time a variety cultivated in the garden of Z. Collins, Esq., in Philadelphia, called Bland's Grape, a hybrid, no way inferior to the best European grape. *It is perfectly hardy and excels in production.*" Who will vouch for the hardiness and productiveness of the Bland in Philadelphia now?

Though we cannot endorse this chapter of Mr. Mead, the balance of the book will, no doubt, meet with a cordial welcome from his fellow pomologists, and be received as a handsome and valuable contribution to horticultural literature.

Milch Cows and Dairy Farming.—By Charles L. Flint. Boston: J. E. Tilton & Co. Philada.: J. B. Lippincott & Co.

In nearly every city paper we find lamentations over the "high price of butter." Dairymen are deemed extortioners, and farmers generally as swindlers of the deepest dye.

It is remarkable that keen business men, such as city Editors are, or such as, at least, city Editors associate with, should not know the product of the Farm can no more resist the great laws of supply and demand than any other branch of trade; and

that the high prices of farm produce being the result of a "combination amongst farmers" is a ridiculous idea. Following the advice of our Philadelphia Editors last season, the people attempted to break up the "combinations" by not eating butter; but they soon learned the truth of the old adage, that "there are many ways of killing a dog," and that "choking him with butter" was not one of the best. Butter went down for a few days, when it was plenty; but as soon as the people used it, the price went up again—of course it would.

The fact is the increase of dairy products in the Eastern States, and probably in the whole United States, does not keep pace with the demand for them. Not ten years ago there was scarcely an Atlantic port that did not export amongst other things a large quantity of butter,—we have watched the returns carefully the past year in the leading ports and find that this has entirely ceased. It is all wanted at home. On the other hand, places to whence we sent butter have increased so immensely their dairy facilities that in view of the heavy profit incidental to such scarity, they are planning to ship to these states butter in large quantities.

We see by the California papers, that preparations are making there to ship butter on the most extensive scale. One single firm in Maria County, milk 2000 cows, and employ 200 men in butter making. In San Francisco, we see a firm is exclusively employed in making butter casks for shipping, employing regularly thirty men in making them. The receipts of butter in the port of San Francisco from the interior, we see estimated at 8000 Firkins per month, and in another place, we note that the consumption is in that city supposed to be about 5000, so that about one-half must be raised for shipping elsewhere.

Now, these figures alone tell the whole butter story. We are satisfied that Pennsylvania and New York together, do not raise any more butter now than they did at the last census, when together they reported a little over a hundred million pounds per annum, a very small quantity per head for each individual, and showing a splendid chance for intelligent men to make money by Dairy Farming.

These matters are a little out of our line, as we generally confine ourselves to strictly *Horticultural* topics, leaving "the Farm" to be handled by our able contemporaries of the agricultural press; but with this handsome book of Mr. Flint's before us, we could not help feeling that there must be an immense demand for such a work, and as our own better-half, (than whom we may be pardoned for saying), there is not a better dairy woman in the whole famed region of Philadelphia butter, says it is "just the thing," we think we may safely recommend it to general perusal.

New and Rare Fruits.

New Fruits.—The new fruits of value that have made their appearance recently are not numerous, although new appearances are plenty. The great difficulty is that unlike new plants which are named by competent authority, we have no means of ascertaining whether many of the new things offered are really new or are but old things under new names. Whenever we notice anything which we have an opportunity of examining ourselves, or which appears to have been passed upon by persons in whose general intelligence we have confidence, we have a place for it in our record of *new fruits*, but for all this many will prove of not much value.

New Western Strawberries.—Mr. F. W. Kramer, an industrious German and a scientific gardener, after many years of experimenting, has succeeded in producing two new and valuable seedling varieties of the strawberry, which have been named, by Hon. Tim. Davis and Judge King, the "Kramer" and "Julien."

Messrs. Davis and King, who have tested the fruit of these new varieties, furnish the following descriptions:

Kramer.—A seedling of Wilson's Albany Prolific; large, handsome, and crimson colored. Not so acid as its parent; of excellent flavor and great firmness; valuable as a market berry.

Julien.—A seedling of the Peabody. One of the most beautiful berries we have ever seen; fair and uniform in size; rich glossy scarlet in color, and of highly aromatic flavor. It combines some of the most valuable qualities as an amateur and market berry.—*Western Paper.*

The Walter Grape.—I have seen the fruit of the Walter grape for three years past; on the last occasion at Mr. Charles Downing's who had just received some of the fruit. The Walter grape, in my opinion is a seedling of the Diana, and exceedingly like its parent; so much indeed, as to require a very nice taste to distinguish the one from the other. If the vine should prove to be vigorous and healthy, and the fruit ripen as early as it is claimed to, the Walter will have much value; otherwise

not. I think the originator of the vine should have placed plants in the hands of his friends in different localities, in order that its vigor, hardiness, and the time of ripening should be better known. The public has a right to be well informed on all these points.—Peter B. Mead, in *Rural New Yorker.*

Foreign Grape, Mrs. Pince's Black Muscat.—We have received from Messrs. Lucombe, Pince, & Co., of Exeter, a bunch of that admirable grape, Mrs. Pince's Black Muscat, which was ripe on the vine *twelve months ago.* We need hardly say it is now in the state of raisins, and these are as fine, fleshy and delicious as the finest imported Muscatels. We take this opportunity of stating that Mrs. Pince's Black Muscat is one of the most valuable acquisitions in the way of grapes which has been introduced for many years. Imagine the delicious but miffy old Black Muscat of Alexandria, with a robust constitution, a thick, stout, sturdy, berry-stalk, a tough membranous, though not thick, skin, and with the property of hanging till the sap rises again, and you have Mrs. Pince's Black Muscat.—*Gard. Chronicle.*

Several New Grapes in Ohio.—At the winter, annual meeting of the Ohio Pomological Society, at Zanesville, a good deal of discussion was had, as usual, on grapes and grape culture. The following remarks on some of the new varieties will be of interest to many of the readers of the *Monthly.*

Longworth—Dr. Warder said this was a very promising variety, found in the garden of the late N. Longworth, Esq., at Cincinnati. It is of the same class as the Herbemont, vine very healthy, vigorous and productive, but earlier; the bunches large and shouldered; berries below medium, round, black, juicy, very piquent and refreshing; delightful for the table and promising to make a superior wine. This variety was marked by Mr. Longworth as his No. 20, and as it was deservedly a favorite with him. We propose to give it the name of that pioneer of American Viticulture.

Lyman—This we find at the same place. The vine has the appearance of the *Vitis riparia* species; it is remarkably thrifty and healthy, with no signs of mildew on the foliage; very productive, yielding large bunches, (sometimes shouldered;) of medium sized berries that are round, dark blue or black, and full of sweet juice. This promises to be one of our best wine grapes, and has been cultivated to some extent for this purpose near Louisville, Ky.

Saratoga (not Catawba)—Referring to the report of the Grape Exhibition, at Cleveland, Mr. G. W. Campbell, of Delaware, said he had been told that some persons had expressed the belief that the *Saratoga*, exhibited there, was nothing more than Catawba; but he was convinced they were mistaken. He read a letter from Mr. Fancher, of Lansingburgh, in support of his opinion, and said he had a vine of the Saratoga growing in his garden and was certain it was not Catawba.

Martha and Black Hawk—The Secretary called for information respecting these two seedlings of the Concord, originated by Samuel Miller, of Lebanon, Pa., and supposed to give promise of value. He believed that Mr. Knox, of Pittsburg, could impart some information respecting them.

Mr. Knox said he had these varieties on trial, and he believed they would give a good report of themselves in due time; but we had all seen the necessity of not being too hasty in judging of the merits of new grapes, or recommending them to the public before sufficiently tested. The *Martha* and *Black Hawk* are respectively white and black; the vines resembling the parent (Concord) in vigor and healthiness; fruit ripens earlier, very sweet and good. He regards the Martha as sustaining the same relation to other white grape that the Concord does to black.

The Iona—Remarks were made on this variety by a large number of persons from central and southern Ohio, and some from Indiana and Pennsylvania, all speaking of the loss of young vines by the past winter, and of the injury to the foliage by mildew, preventing the ripening of the wood the present season. But it was admitted that the past summer, at the West especially, was remarkably wet and cool, and nearly all varieties of grapes had mildewed badly, excepting along the lake shore region; and also that the past winter was unusually severe, killing many vines of Delaware, Catawba and other varieties regarded as hardy.

Mr. Bushnell, agent of Dr. Grant, said the friends of the Iona were quite willing to let the merits of that variety bide the severest test of time, and they had no fear of the result. He did not suppose any one variety of fine quality would be found to succeed perfectly in all sections of our widely extended country, and in all seasons. He spoke of localities east, where the Iona had shown less tendency to mildew than even the Concord, and persons were digging up vines of the latter to make room for the former. And in the neighborhood of Hammondsport and along the south shore of Lake Erie, the Iona had succeeded so finely that they were preparing to plant it largely for wine as well as for market.

Mr. Bateham, of Painesville, said he had ob-

served vines of the Iona, in many localities along the lake shore the past two seasons, and had seen no mildew or other signs of disease to speak of, nor did he believe the variety lacked hardiness, though he had, in common with others, lost some vines by the past winter, when the thermometer was 15° below zero, with the ground bare of snow and the roots too near the surface in porous soil, so that even the hardiest varieties were root-killed, without injury to the tops.—M. B. Bateham, *Painesville, Ohio.*

Bottle Greening.—A chance seedling found on a farm near the Vermont and New York State line. Disseminated by Eben Wright, of Dedham. Medium form, fair size; color yellowish-green, red cheek, with a rich, purple plum-like bloom; when ripe, golden yellow, with red cheek. Flesh subacid, almost melting, core small. A dessert apple. October to February.—*Boston Journal of Horticulture.*

New and Rare Plants.

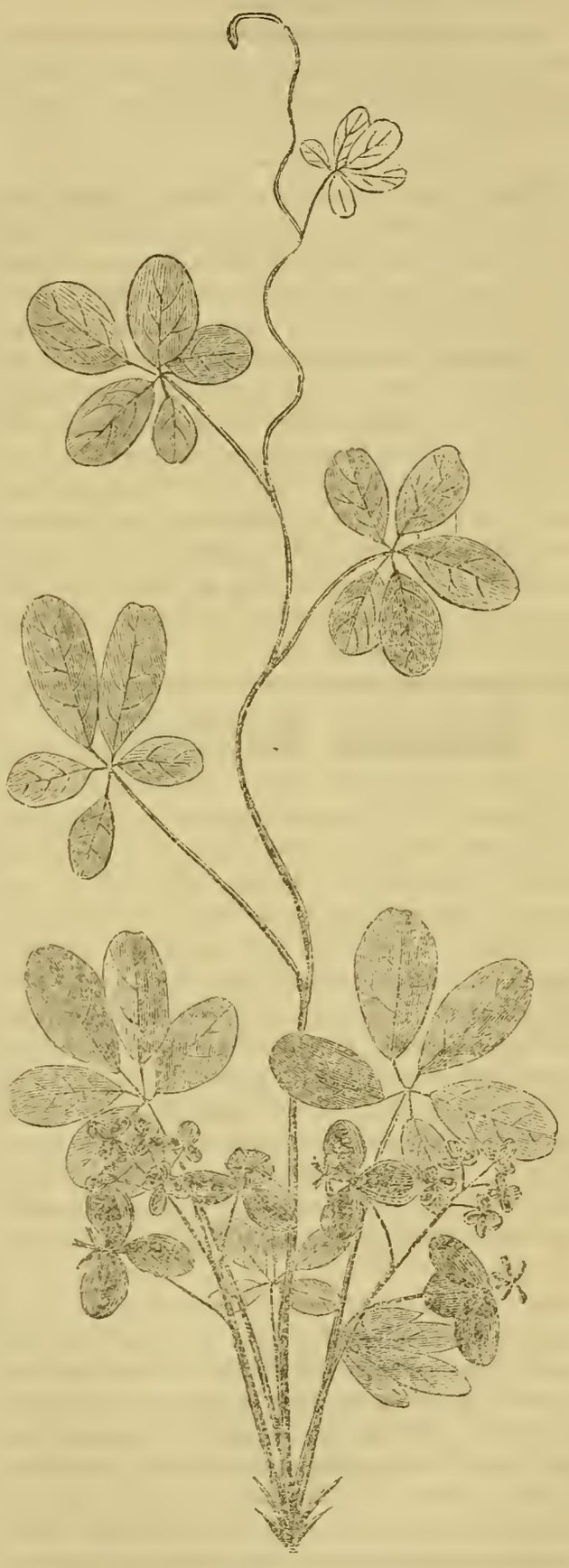
Akebia quinata.—We have repeatedly called public attention to this beautiful hardy twiner, but we rarely see it anywhere.

It is a native of Japan, and very interesting to Botanists, on account of its being a representative of a natural order (Lardizabalacea,) they have seldom an opportunity of studying. It has something the habit of our native vine "moon seed," (*Menispermum canadensis*), but the leaves are in fives (*quinate*). The flowers of a rich plum color, and emit a grateful perfume. There are male and female flowers separate on the same bunch; but it will interest Botanists to know that an occasional hermaphodite flower may be seen.

The fruit in Japan is used for medical purposes, but we have not seen any flower perfect its fruit in this country.

It is a vine of very rapid growth, we saw one make twenty feet last year, and it remained out on its trellis entirely uninjured in a very exposed situation the past winter, where the thermometer was 13° below zero, all the winter, and retained its leaves green until a very late period.

Many Japanese plants, the Paulownia for instance, buds out very late, but this one is one of the first to leaf, and is quite green before Clematis, Trumpet vines, &c.; near it showed signs of activity, and indeed during May was covered with its blossoms before some of the other plants had burst their buds. Our cut is one half the natural size.



The plant may be increased by either layers or cuttings, but the roots are a long while putting out, and this, probably, has been against its dissemina-

tion, for it has been nearly fifteen years in this country, and was we think first introduced by the Feast's of Baltimore, about that time.

There is another plant, allied to this, Stauntonia latifolia, often met with in greenhouses, which, coming from the same place, might prove hardy if tried out.

Hermaphrodite aucubas—We have long since noticed the introduction from Japan of a male plant of the Aucuba japonica, and the consequent production of plants bearing fruit in this country. Previously we had only plants bearing female blossoms. Mr. Standish, promptly taking advantage of the production of fruit, has raised seedlings, and with more than expected success, for one of them exhibited at the Royal Horticultural Society produced hermaphrodite flowers—that is each flower had stamens and pistil. Many naturalists consider that when either set of organs is not developed in a flower, yet the rudiments of that set exist, and only require some particular mode of cultivation for their development.—*Cottage Gardener.*

Domestic Intelligence.

Death of Hon. Isaac Newton, Commissioner of Agriculture.—This our readers have been advised of by the daily papers. Mr. N. was appointed from Philadelphia, where he kept a popular ice cream saloon, and had a farm near the city. Mr. Newton was not distinguished by superior education, and we, in common with the press generally, have often felt free to criticise his short-comings in this respect,—but we never joined in the clamor for his removal, because we have never had any expectation that in a country like ours, government institutions of this character can ever be equal in value to individual enterprise, and consequently such institutions can never get first-class men to occupy them.

Mr. Newton was a much more honest man than many of the regular politicians, and a man of great energy; and we believe made the department quite as useful as it was capable of, and as it would be under many of those who thought he ought to be put out and be themselves put into his situation.

Old Pear Trees on the Mississippi.—On the "American Bottom," opposite St. Louis, are Pear trees estimated to be 70 or 80 years old, and probably of French origin. One resembles the Bartlett in outline and color, and ripens in August, but only 'good' in quality. It is as hale and hearty as ever. At Cahokia are some trees estimated at 120 years, forty to fifty feet high, with a trunk 3 feet in diameter. They produce from 15 to 20 bushels each of a fruit said to rival Seckel. It has been disseminated as the Cahokia Seedling.—W. C. Flagg, in *Boston Journal of Horticulture.*

Trees and Fruits in Kansas.—A correspondent in *Iowa Homestead* says: "Ottawa, the county seat of Franklin, is a handsome village of about twelve hundred inhabitants. It is situated on the south bank of the Marias des Cygnes, (pronounced Meri de Sene.) The lands are those of the Ottawa Indians. They are civilized, and their lands have only been open for white settlers two years. These Indians have donated fifty thousand acres of their best land to build a University. One wing of the building is nearly completed—a handsome, cut-stone edifice. On the reserve, which is twelve miles square, are a few old seedling orchards planted by the Indians many years ago, and the most of the trees are scarred by prairie fires. The settlers now opening farms are putting out trees. Outside of the reserve there are some young orchards that look promising. Peaches are raised here, but are not a certain crop every year. This fall I saw a few specimens that were really nice,—George 4th, Old Mixon Cling and Melocoton. Nineteen of those raised, however, are seedlings.

"Grapes are said to do well. Concord, Delaware, Clinton, Norton's Virginia, Isabella and Catawba are principally raised. Concord is the most popular.

"There is the greatest variety of soil and exposures in this country. Hills of sandstone. Hills of limestone. Hills of all shapes, and bottom lands rich in alluvial deposits. Bottoms salty, alkaline lands they are called. Where countless herds of buffalo, in generations back, have trodden all the life out of the soil. Scanty herbage and the cactus mark the buffalo tramps. Great efforts are being made to encourage and induce tree planting in Kansas. An act of her legislature pays $2.00 per acre for twenty-five years to the planter of groves."

The Santa Barbara Grape-vine, &c., &c.—In the spring of 1860 I had occasion to visit Santa Barbara, and went to Montecito. According to the statements then made to me by parties of undoubted veracity, the yield, *per annum*, was set down at 10,000 pounds of grapes, from which 1000 gallons of wine could have been produced—ten pounds of grapes of the same variety, and identical in quality,

producing a gallon of wine throughout the southern counties of California.

The mention of grapes and wine, carries me back to Los Angeles, where more than fifteen hundred acres are in vines; and to Anaheim, with its thousand acres; and finally to "Lake Vineyard," the splendid place of B. D. Wilson, Esq., with its 200 acres of vines, its plantation of olives, oranges, limes, lemons, figs, &c.—*American Farmer.*

Fairmount Park, Philadelphia.—In our first volume we gave an engraving of the plan adopted for the new park at Philadelphia, which was begun with the idea of making it a rival of the Central Park, New York. Unfortunately it could not be put into the hands of a respectable commission, as New York did, hence it became a hospital for rotten politicians; and though enormous sums have been used up about election times, nothing of the name of Landscape Gardening has appeared. The disgust of the Citizens of taste was so great that, last session, the Legislature appointed "a commission" to take charge of it. But the matter has not been much mended, for the politicians took care that the body should be made up of most of their ranks, some of whom have had the mismanagement of the affair before, and not a single name of one who has any reputation for taste in Landscape gardening, either as an amateur or in a professional way, appears on the list. The only gain is in a few respectable people, whom the community feel above corruption, being parts of the board of Commissioners. Major General Meade is President of the Commission,—in his honesty the public have confidence, and if he and the other gentlemen like him, shall only prove to be the *working men* of the body, some good may yet come.

At a recent meeting of the Board, we see that the total cost of the ground for the Park, so far has been $402,861. We have not been able to get at the amount squandered on "Improvements."

The Ramie.—We several years ago called the attention of our readers to this new staple, a member of the nettle family, *Boehmeria tenacissima.* It appears to have been tried in the South with some success, and Mr. Bacon in 1866, read a very interesting paper on it, before the New Orleans Academy of Sciences. The monthly Magazine of the Agricultural department at Washington has at length learned that there is such a thing, and recently called the attention of its subscribers to the fact.

The plant introduced to France from Java in 1844, was sent to Mexico under the auspices of Mr. Roezl, and in that country it has been found to grow well. The fibre is stronger than hemp, and said to be finer—some say nearly as fine as silk, and it is believed can be probably raised to a profit.

Diseased Fruit Trees in North Carolina.—Mr. D. D. Moore says in the *Rural New Yorker* of a garden in the grounds of Mr. Blackmer in N. Carolina: "Pears and cherries have succeeded remarkably well, but last year, for the first time, the pear blight made its appearance, and has destroyed or seriously affected many of the finest trees. To my surprise the trees of the Seckel pear, both standard and dwarf, are affected by the blight, though none are yet seriously injured or destroyed. As a singular fact I will als state that Mr. B.'s cherries—especially the Black Tartarian and Napoleon Bigarreau—are affected by a blight similar to that of the pear. All the leading northern varieties of the plum are rendered worthless by the curculio, while southern varieties escape its effects.

A Large Cherry Tree at Walworth, N. Y.—I visited a giant cherry tree growing on the farm of a Mr. Lawrence, about three-fourths of a mile from the residence of Mr. Yeomans, and took its measurement. At 4½ feet from the ground it measures 14 feet six inches in circumference. About 6 feet from the ground it throws out 5 enormous limbs each the size around of a flour barrel. It is sixty-five feet in height, and its top has a spread of over 4 rods. It is a late Black Heart, and bears regularly every year. Fifteen bushels of cherries have been picked from it in a day, and the whole yield this season was full 40 bushels, and then enough were left on the extremitie of the limbs, that could not be got, to feast the birds for a long time. It shows no sign of decay—is apparently sound and healthy. The growth of the branches this season is from 8 to 12 inches in length. If I ever find a cherry tree that beats this, I will let you know.—*Lyons Republican.*

Dwarf Pears.—A visitor to Mr. Yeoman's fruit garden reports the following conversation:

I see you have gone pretty extensively into dwarf pears; do you consider them more certain than standards, or are they more profitable? "The advantage of dwarf over standard pears are several. Many varieties are worthless on pear stocks, like the Duchess D'Angouleme, but good on the quince. Then they come into bearing earlier, and are much more easily gathered. My orchard, that you admire so much, contains about ten acres of land, and num-

bers over 4,000 trees, 3,000 of which are Duchesse d'Angouleme. You noticed that a few of them are larger than the others; this is the cause: when I planted t em, fourteen years ago, they were of the same size and age, but a large portion of them proving unsatisfactory, when they came to fruit, I budded them over with the Duchesse. which had proved entirely satisfactory, and hat set them back five or six years."

You seem to be partial to the "Duchesse," Mr. Yeomans! "Yes; and were I to be restricted to one pear, that is the one I should select for cultivation."

Foreign Intelligence.

Tom Thumb Arborvitæ.—Mr. M'Nab exhibited a plant of the new dwarf Arborvitæ, described and figured in the "Illustrated Farmer's and Gardener's Almanac for 1867," pp. 102, 103, and made the following remarks regarding it:—"Lately passing through the extensive nursery grounds of Messrs. P. Lawson & Son, my attention was directed to a large quantity of a peculiar looking dwarf shrub growing in one of their enclosures. On inquiry I found that they had been recently received from Messrs. Ellwanger & Barry, of Rochester, N. Y., under the name of the Tom Thumb Arborvitæ. The parent plant, of which the above are cuttings, is supposed to be an accidental seedling from the American Arborvitæ, Thuja occidentalis. Although most of the leaves are of a Heath-like appearance, still several small shoots are here and there seen which unmistakably refer it to the American Arborvitæ. It is a curious fact that the Heath-like leaves have a slight smell of the Juniper, while the smell of the typical leaves is identical with the American Arborvitæ. This horticultural curiosity has a compact, rounded habit. It is to be sent out next autumn by the Messrs. Lawson under the name of Thuja occidentalis ericoides.—*Ag. Gazette.*

Raising Ferns from Spores.—Half fill a pot or pan with pieces of broken pots, and fill to the rim with peat two-thirds, and loam one-third, adding one-sixth of silver sand. Make the surface smooth and firm, and give a good watering. Whilst wet scatter the powder or spores of the fern over the surface; or, holding a frond with ripe spore-cases over the pot, rub the hand against the back or under-side of the frond, and the yellow or brown powder-like spores will settle upon the surface of the soil. Gently pat the surface with the hand and cover the pot with a bell-glass, its rim fitting exactly within the rim of the pot and resting on the soil. Place the pot in a saucer, and fill the latter with water, always keeping it full, and put all in a house with a temperature of from 60° to 65°, the house being shaded from bright sun, or if not, a paper cap made to fit on the upper part of the glass, and put on during bright sun, will answer every purpose of shade. The surface of the soil must always be kept moist, and the glass should be kept on closely until the soil becomes green; then tilt the glass a little on one side by night, and increase the amount of air by day and as the surface becomes more green. Continue the bell-glass over the pot until the plants have formed two or three fronds, and then gradually harden off and pot the seedlings when large enough to handle, keeping them moist and carefully shaded.—*Cottage Gardener.*

Grasses in British Columbia.—The following is an extract from the proceedings of the Highland and Agricultural Society at the Monthly Meeting of the Directors.

The Secretary reported that in the spring of 1866 the Society had received three communications from Mr. W. E. Cormack, New Westminster, British Columbia, transmitting four samples of grass seeds indigenous to that district. In the first letter, Mr. Cormack says:—

"I beg to forward to you a little of the seed of the inestimable Bunch Grass of British Columbia, celebrated on account of its nutritious qualities for strengthening and fattening horses and horned cattle, and which, if introduced into some of the Highland districts of Scotland, might prove a valuable acquisition. It grows only in the interior, not at the sea coast; and in those inland districts where artificial provender is not yet produced in any quantity, horses, mules and horned cattle gain strength and thrive upon it better than upon any artificially grown food. The small quantity now sent in a letter is merely a forerunner of more which I mean to send to you by some other mode of conveyance than by post. The first object is to ascertain if it will grow in Scotland. It thrives better upon moist soil than upon dry. Its history has been little attended to, and what is known of it is from the experience of transient equestrian travellers and cattle dealers, who supply the miners in the district with meat. There are several varieties of it in different districts, all equally valuable. It grows in large bunches, about one and a half to two feet in height, standing a foot or two feet apart.

When eaten down by cattle it is said not to grow again from the same roots, wild sage takes its place. It is a question if it produces seed every year; and the seed may require two years to germinate. The seed will likely enable you to give it a botanical place."

The second communication, dated 8th February, 1866, is as follows:—

"On the 18th December last, I had the pleasure of addressing you, transmitting a preliminary sample of the seed of a very valuable grass, called the Bunce Grass, indigenous to the elevated interior parts of British Columbia, and along the range of the Rocky Mountains, in the hope that upon trial such a grass might prove valuable in the Highlands of Scotland. I have now the pleasure of sending an additional sample."

Mr. Cormack gives the following particulars concerning this plant, which has been supplied to him by an observant traveller in the interior:—

"The nutritious qualities of the Bunch Grass of British Columbia are really surprising. It grows in very poor sandy, gravelly soil, and at very high altitudes, even several thousand feet above the level of the sea, and seems to grow well in places where there is little or no other vegetation. All kinds of live stock fatten very rapidly on Bunch Grass; and the packers in this country burn off the old dry grass in the fall of the year, so that they may have a fresh supply of young grass for their horses and mules in the spring. It makes very good hay, and when perfectly dry loses none of its nutritious qualities."

With the third letter from Mr. Cormack, the Society received three other species of indigenous grasses from Lake La Hache, near the Cariboo district, as well as the following particulars concerning them:—

"No. 1. Found on comparatively low ground, height, 3 feet to 3 feet 6 inches. No. 2. A Timothy, on low, loamy soil and marshes; height, 6 feet to 6 feet 6 inches. No. 3. Red Top, found on comparatively low ground and marshes; height, 3 feet 3 inches to 3 feet 6 inches. The Red Top is allowed by graziers and travellers to be equally valuable with the Bunch Grass; and the other two sorts, Nos. 1 and 2, are evidently well worth a trial."

Under the instructions of the Directors, the late Secretary lost no time in placing the seeds, along with the explanatory notes, in the hands of two eminent nurserymen, of Edinburgh, (Messrs. Robt. T. Mackintosh and Peter S. Robertson,) who kindly undertook to prove the seeds; and the reports of these gentlemen have just been received.

Mr. Mackintosh's statement is as follows:—

"Referring to the grasses that were sent to me by the late Mr. Hall Maxwell to prove and report upon, I beg to say that I sowed said seeds, and watched their growth very narrowly. I have to inform you, however, that out of the four samples sent me only two vegetated—No. 1 and No. 4—and which are quite up to the description that accompanied them. No. 1, in my opinion is too much allied to the Bent grasses of our country to be any great acquisition to our already numerous family of grasses. No. 4 I think different of from its appearance and succulent nature; growing on poor soils in high situations, it might prove a very valuable addition to the Italian grass family, which in appearance it very much resembles, with this in its favor over the Italian, of evidently being much hardier."

Mr. Robertson's report is in the following terms:

"In reply to your favor of this date (30th Mar.,) regarding the Columbian grass seeds, which I received from the late Mr. Hall Maxwell, I had them all sown on carefully prepared ground, in April, 1866, and the following is the result:—1st. Grass from Lake La Hache came up pretty well, produced broad, short, soft leaves in abundance, came into flower in August, appeared to be a species of Bromus; the panicles grew to a height of 1-1½ foot, but had no fertile seeds. The plants had no covering during last winter, and they are looking very fresh and healthy at present. I notice that the growth made by the leaves at this date is far earlier than our ordinary grasses, and looks as if it would be nearly as early as Bromus Schraderi. I intend to separate the stools during April to increase the plants, and to see if the second year's herbage be stronger than the first year's. 2d. Timothy grass, from same lake as above—only three or four plants of this parcel grew; these did not flower last year, are at present quite healthy, and resemble the common Timothy in every respect, but that they are growing much earlier. I purpose to divide the plants of this also, and as it belongs to a more promising family than the Bromi as a forage grass, I have a hope it may be worth attention. 3d. Fescue grass, grew well, leaves long, very narrow is distinct from any of the cultivated sorts, the herbage scanty, no flowers produced, and about half of the plants killed during the winter. I suspect this parcel contained two species. The seeds did not look different, but the result as to hardiness seems to indicate a mixture. Of the other parcels none grew with me, and I fear that no further germination can be expected this year.—*Gard. Chronicle.*

Roman Hyacinth.—This pretty little bulb, now so much grown under the name of Roman Hyacinth, is not, as you seem to suppose, the Hyacinthus romanus. That is a very different thing, and is now usually referred to the genus Bellevalia. The plant in question is rather a miniature variety of the Hyacinthus orientalis, and we venture the supposition that it has been obtained by "selection," in the same way as the Pompon Dahlia—indeed, it would have been better called Pompon Hyacinth.—*Gardener's Chronicle.*

Connecting Relations between Animal and Vegetable Kingdoms.—It seems but a few years ago when we were taught that the animal and vegetable kingdoms were composed of entirely different kinds of substances. Nitrogenous compounds were said to belong to the animal kingdom; and the vegetable kingdom was said to be formed of carbonaceous matters only. First starch, then woody fibre, then coloring matters like indigo, then alkaloids like quinine, were, one after the other, thought to distinguish the vegetable from the animal creation; but each of these substances, or their representatives, have at last been found in animals, as has been shown in a paper by Dr. Bence Jones, on the "Dyaletic separation of gases," read before a recent meeting of the British Association for the Advancement of Sciences.

Hippophae rhamnoides.—This is a most beautiful berry-bearing plant, although it is seldom seen in fruit. This fact, no doubt, arises from our ignorance of its being unisexual. Hence, wherever it is planted, it is generally alone, and therefore no berries can be produced; moreover, it is a straggling grower, and not by any means a general favorite with planters. I had the good fortune, however, a short time since, to pay a visit to the nursery of Messrs. Backhouse & Son, of York, where I saw a bush 7 feet in height, and as much through, having its stems literally covered with berries, which are sessile. These spikes of berries, if I may be allowed the expression, were from 6 to 9 inches in length; the berries themselves are of a primrose color underneath, and with a little rose color next the sun, about the size of large Holly berries, and somewhat oval in shape. Mr. Backhouse informed me that he travelled a long way to procure the male plant many years ago, but the sight which this tree presented must have amply repaid him. The male and female were planted close together, and the only care bestowed for this rich harvest was to occasionally shake the male tree while in flower, thereby causing the pollen to fly off in clouds, and fall on the flowers of the female plant. As many persons are now seeking after berry-bearing plants, I have little doubt that if you make this known, it will lead to Hippophae rhamnoides being often included in collections.—E. in *Gardener's Chronicle.*

The Natural Forms of Dwarf Pears.—A correspondent of the *Cottage Gardener* gives the following experience of pear forms in the north of England:

Doyenne d'Ete makes a very short but robust growth on the quince stock, and bears an abundance of fruit, which ripens about the 1st of Aug. The fruit should be gathered before it begins to turn yellow. It will then be melting, juicy and sweet. It soon becomes mealy if kept more than a day or two.

Beurre Giffard forms a small but compact bush on the quince. The growth is quite satisfactory. The shoots require to be shortened to 4 or 5 inches in length about the beginning of July, as the tree forms fruit-spurs sparingly.

Beurre Goubault makes a most beautiful bush, like a forest tree in miniature. Bears abundantly and regularly. The fruit ripens well, is juicy, melting, with a pleasing aroma. It is ready for use about the first week in October.

Fondante d'Automne forms a beautiful vase-shaped bush, bears freely, and the fruit ripens well, and is melting and sweet, with a most agreeable aromatic juice. It is ready for the table about the middle of October.

River's Summer Beurre d'Aremberg grows freely on the quince, is healthy, and shows no sign of canker. It will be a free bearer, I think, because the tree is already studded with fruit-spurs.

Beurre Superfin makes a handsome spreading bush, grown vigorously, and ripens its wood well: but hitherto the blossoms have always been small and weak.

Alexandre Bivort forms a handsome spreading bush, grows freely, and puts forth a proper amount of fruit-spurs.

Comte de Lamy assumes the shape of an upright cup, makes a stout robust growth, and produces a moderate crop of medium-sized fruit, which ripens well in October.

Doyenne Bousssock grows into a fine spreading bush, and bears freely very fine, large fruit, which ripens well. Two Pears of this variety weighed 18½ ozs. The flesh is crisp and juicy, with the flavor of an apple, and very refreshing. This fruit is ripe

towards the end of October, and is quite distinct from any other pear I have ever tasted.

Beurre Hardy forms a very handsome spreading bush, remarkable for its vigorous growth and the beauty of its abundant rich green foliage. It must be able to flourish in the most unfavorable soils. This bush has been forked out of the ground every year for the last four years, and it seems rather to like the operation than otherwise. It produces large pyramidal-shaped fruits; flesh melting and very juicy, with a slight, yet agreeable perfume. Ripe early in November.

Comte de Flandre assumes the form of a Cypress, and is decidedly the most beautiful tree in the collection. It puts forth in spring fine large trusses of bloom, which remain a long time in flower; every bloom passes into a fruit, which has no idea of tumbling off, so the scissors must be freely used. One fruit weighed rather more than three-quarters of a pound, and all the rest were fine, large, pyramidal-shaped pears. The first fruit was ripe on the 10th of December, the second on the 20th and the remainder of the crop is still in the fruit-room; so this variety ripens slowly, and is not inclined to decay. It comes into season in December and January. Flesh fine-grained, without a core, melting, very juicy, sweet, with an agreeable aroma.

Baronne de Mello grows freely, and produces blossom-buds in abundance, which never set.

Doyenne Defais forms a healthy upright tree, which will bear abundantly against a south wall, but as a bush its flowers are too weak and tender o be fruitful.—*Cottage Gardener.*

Sir Samuel Baker on the Sources of the Nile.—Sir Samuel Baker commenced by remarking on the great interest that was attached to the river Nile. On its waters the first histor an of the world was cradled, on its banks civilization flourished when our own country was in a state of barbarism; and it was to this river that the prosperity of Egypt in those remote ages, as well as at the present day, was owing. The mystery of its source had been a subject of attention not only to the kings and priest, of the country, but also Julius Cæsar. The distinguished traveller then proceeded to state generally that the White Nile commenced in immense reservoirs, took its course through flat and foul marshes, until in latitude 15 deg. the stream was joined and to a great extent purified by the waters of the Blue Nile from Abyssinia. It was further purified at a lower part of its course by a third tributary, and there the Nile was in its greatest volume. Sir Samuel first explored the Abyssinian branch. This, bounded and marked by banks of green, flowed through a vast plain of sand. Large pools swarmed with crocodiles, turtles, and fish of monstrous size. In the largest pool were herds of hippopotami, while in that region he saw the phenomena of the extraordinary rise of the river. This, he was convinced was caused by the tremendous rainfall of Abyssinia, where the rain did not simply pour down, but came down like a waterspout. The exploration of the main source was more difficult, because the course lay through a country inhabited wholly by savages, amongst whom the explorers had to trust to Providence and themselves. When he got to that point which had been attained by the centurions of Nero when they reached the fur hest point that ever had been discovered, he looked forward with great interest, and hoped that what the Romans had been unable to do the English would succeed in accomplishing. While travelling through this part of the country, he heard from the natives accounts of white men who they said had come from the sea, and who used extraordinary fireworks. Soon after this he heard the report of a gun, and in a short time more he saw and rushed into the arms of Speke and Grant. From them he received instructions and maps which were of the greatest service to him. Having already published his account of his travels in this region, he would not enter into a lengthened description.—*Gardener's Magazine.*

Goodyera discolor Culture.—The pot ought to be one-third filled with crocks, and the compost should consist of turfy or fibrous peat, and chopped sphagnum, with a free admixture of silver sand and charcoal, from which the dust is sifted, the sand and charcoal together may form one-third of the compost. If cocoa-nut refuse can be had it may be used in the place of the sphagnum. The Goodyera should be potted when it recommences growth, and water must be somewhat sparingly given at first, but increased with the growth, abundance being afforded both at the root and in the atmosphere when the plant is growing freely. In potting, press the compost firmly. Free ventilation should be given day and night, and a temperature of from 60° to 85° in summer, and from 45° to 50° in winter will suit it. It should be shaded from bright sun. When at rest but little water is needed, yet the plant should not be allowed to suffer; it should have a little now and then over the pot—a gentle bedewing to keep it plump and fresh. Avoid cold currents of air, and do not allow cold air to come in contact with the leaves whilst wet, as they may thus become discolored.—*Cottage Gardener.*

THE IVY WITH THE ANCIENTS.—The Ivy was well known to the Greeks and the Romans. Its Greek names were Kissos and Kittos, from Kissos or Cissus—the name of a boy whom Bacchus is said to have changed into this plant. By the Romans it was called Hedera, which name it still retains. Ovid gives it the very appropriate epithet of "flexipes" (Met. x., 99), twiny-footed. Virgil calls it wandering or straggling—"Errantes edoras (Ecl. iv., 19). Catullus describes its manner of growth with great beauty of language—

"As clasping ivy shoots its sprays,
Around the tree in wanton maze."—lxi., 34.

Horace gives a similar representation of it in the following lines:

More close than ivy girds the lofty oak,
With pliant arms adhering.

And Ovid adds the circumstance of its forming knots by the reflection of its branches, and likewise mentions its bunches of berries. These berries are well described in the following line:

"With pallid green the gilded clusters tinge."

The general hue of the plant is marked by Virgil with different epithets, which some commentators account for by supposing the leaves are meant in one passage and the berries in another, and others by referring to the different species of ivy which the prose author describes. We have first the appellation of pale:

"The scatter'd clusters clothed with ivy pale."—Ecl. iii., 39.

In this place, no doubt, the leaves are intended, as it is said, to clothe the branches. Again, we read:

"More fair than ivy white.—Ecl. vii., 38.

Thus referring to the variegated varieties now so common, and beautiful enough to justify the comparison here made use of. Horace contrasts the pleasant green of the ivy with the dusky coat of the myrtle in the following lines:

"That more delights the youthful spark
In ivy green, than myrtle dark."—Carm. i., 25.

Homer also describes his heroes as drinking out of a cup made of ivy wood. The beechen cup of Alcimedon had a lid of ivy carved with grapes:

"The lids are ivy; grapes in clusters lurk
Beneath the carving of the curious work."

—*Scottish Farmer.*]

BROWN'S TRAVELS IN COLUMBIA.—Whilst passing the Great Klamath Lake, we visited some of the encampments of the Klamaths. They are very degraded, and only rank superior to the Diggers of the mountains of California, and are as much inferior to the Warm Springs and most other tribes as these are inferior to the highest class of Caucasians. They were busy laying in one of the staples of their winter's food, the wokas, or seeds of the Nuphar, which covered the borders of the lake: and here we had an instance of the truth of the old truism, that "one half of the world does not know how the other half lives." Many of the men were bringing in canoe loads of the fresh capsules, while others were drying them in heaps; then, in another place, some squaws were breaking them up, and separating the husk from the seed with platters wove of tule (Scirpus lacustris, Linn;); whilst, finally, another group of women bagging it and carefully stowing it off for use. When a Klamath squaw gets up on a winter morning, her first duty is to take some of this wokas, stir it up in a platter with a few hot coals (of wood), and so parch it, and then grind it between two stones, when it is ready for use after being mixed with a little water. Sometimes they float the shells of and eat it whole. In this condition it tastes not unlike parched corn, and is said to be very nutritive and strengthening. The Indians say they can travel further on this than any other description of food.

Horticultural Notices.

PENNSYLVANIA HORTICULTURAL SOCIETY.

The Fair at the opening of the new hall was a great success. The receipts were over twelve thousand dollars. A Rose and Strawberry show was arranged to be held during the fair, but the season was too late for the time fixed, nevertheless some of the Stinger, Philadelphia, and other new kinds of strawberries, were on exhibition from Charles Harmer and A. S. Felton, as well as some very fine dishes from Mr. Parry and others in New Jersey. Mr. W. Saunders of the experimental gardens at Washington, exhibited a large lot of fruit, gathered from a miscellaneous bed of seedlings, sown only last July. To us the most interesting fact was that most of them were of quite as good properties as most of the new ones sent out, showing how easy it is to get a good strawberry. There were first-rate kinds enough amongst these to make the fortunes of a hundred adventurers on the novelty line.

The collection of greenhouse plants from Mr. Buist, were excellently grown and very select, and Mr. Dreer did well with florists flowers.

The hall itself, though yet unfinished, was the admiration of all who saw it. In size it is believed to be the largest in the United States, the hall covering an area of fifteen thousand square feet. In the decoration of the hall for this special pur-

pose a magnificent painting of the chief source of the Amazon by Russel Smith was introduced, and the greenhouses of Philadelphia contributed their large specimen tropical plants. Real water was introduced to combine with the artificial stream in the picture, and nature and art were so beautifully b ended as to produce an effect probably never before seen "on any stage." The designing of this beautiful scene is due chiefly to Mr. J. E. Mitchell, one the Vice-Presidents of the Society.

It may not be out of place here to show how this successful effort of the Horticultur l Society originated. For many years there has been a wish, on the part of some of the members of the Society, that it should have a hall of its own,—but the old Chinese Museum suited the Society's purpose so well that there was no chance of a new hall in Philadelphia, of such a size, proving self-sustaining. Mr. Caleb Cope, however, for so many years one of the most successful Presidents of the Society, persistently advocated the "permanent home" policy. After the burning of the Chinese Museum, members became more united in this view, but no one seemed to have nerve enough to make a start for fear of failure in so stupendous an enterprise. The first step gained was through the exertions of Messrs. Wm. Saunders, J. E. Mitchell, A. W. Harrison, D. R. King and perhaps a few others who urged the leasing, for a term of years, a large hall, which should be, nominally at least, the Society's own. This was done, but with fear and trembling on the part of some,—but it proved a safe operation, and the old "Horticultural Hall" was always a favorite idea. For the annual exhibitions, however, an expense of some thousands had to be incurred for temporary tents and fixings, and after one had been thus held on the lot now built on, Miss Percival, a lady long connected with the prosperity of the Society, expressed a wish that it could be purchased and a permanent h ll built on it. This was repeated, one evening, in the presence of half a dozen gentlemen, Charles Harmer, S. S. Price, A. W. Harrison, C. P. Hays, W. L. Schaffer and perhaps one or two more, and they resolved that it "should be done," and commenced trying at once. In a few days the idea took shape. The late Vice-President Baldwin gave a handsome subscription, and others followed in proportion. Finding that they could not raise enough money to build so large and handsome a building as was desirable by the aid of the members of the Horticul ural Society alone, the Legislature all wed them to issue certificates of stock to outsiders, and as the Society will rent out the hall for musical and other purposes, and will be, in all probability, a very profitable investment, the money came in pretty well, so much so, that at this writing there are probably not more than twenty thousand dollars worth unsold.

But the labor of carrying th ough this great work has been enormous, and has fallen on a few principal members who should ever receive the thanks of horticulturists. Among those the President, D. R. King; Secretary, A. W. Harrison; have had a hard share,—and Messrs. Charles Harmer, J. E. Mitchell, Thomas P. James, Charles P. Hays, W. L. Schaffer and Miss Percival have been constant in their efforts,—While amongst the nurs rymen of Philadelphia, H. A. Dreer, Peter Mackenzie, Jas. Ritchie and R bert Buist have done a good share of valuable service.

Altogether the success of this enterprise shows that in horticulture as in all th ngs else, "some thing can e done as well as others,"—all that is wanted is a determined start and persistent application, and the result will encourage horticulturists all through the land to "go and do likewise."

HAMMONTON (N.J.,) STRAWBERRY SHOW.

Every student of English history has read of the king who died through a "surfeit of strawberries."

In our youth we were noted for a tendency to unbelief unless in very straight forward s ories, and we never could understand how any one could surfeit of such "good things as strawberries." There might be "too much of a good thing" once in a while thought we, but not of strawberries. But since we have seen these Hammonton strawberries e think even a king might die of too much of them.

The people here talk of nothing but strawberries, grow nothing but strawberries, eat nothing but strawberries, can see nothing but strawberries, and all they have to sell is strawberries. They sleep on strawberries, and in short the strawberry is food, drink and raiment to them. *One thousand acres* of strawberries, and only 3000 inhabitants! can any place beat this?

But they grow good strawberries, that is some excuse for their enthusiasm. We have seen heavy crops in our time, and we should judge from what we saw there, 150 bushels to the acre, was not an uncommon crop, and this not bad for a plot of land which ten years ago would have been passed over as "barren" sand.

The average size of the berries was equal to what we have seen on the best strawberry land, and as to varieties it was remarkable to note that though

they had experimented largely with most of the new varieties, no kinds were popular but Wilson's Alba y and Triomphe de Gand. We heard a veteran pomologist, filling no less a position than Vice-President of the National Pomological Society, say to some friends, after thoroughly examining Hammonton and comparing all the kinds he saw with those in his own State, "there are *but two strawberries* worthy of the name—Wilson's Albany and Hovey's Seedling."

We left before the committee had made their award, but the awards of committees, awarded on plates of fruits, do not give value to a strawberry. It may be large and good flavored, but the true merits of a strawberry can only be proved in the ground.

On the table Brooklyn Scarlet, Agriculturist, Wilson's Albany and Triomphe de Gand made about the best show. A new variety, the "Philadelphia," excited some attention, it was p.etty good flavored and early, but as grown in Hammonton of only mediu n size. If better than May Queen, with which we should like to see it fairly and fully tested, it may be a desirable variety. Metcalf's Early was on exhibition, and was not considered perfection by the growers. A firs -rate early is yet a desideratum. The Hammonton growers think New Jersey Scarlet one of the best, but it is so pasty and flavorless that they want a better.

By the energy and liberality of Mr. E. Matlack and the Camden and Atlantic Railroad Company, hundreds of pomologists from all parts were gathered together an. it was quite a gala day amongst the brethern.

In return for the courtesy extended to ourselves we will make a few suggestions that may serve to benefit the place.

Ten years ago Hammonton was a desert. The class which settled there was a poor one, attracted there by the cheapness of the land. They had little money. They found fruit would grow, and as it produced the quickest return for money invested the strawberry was largely planted. As they got means, instead of varying their product they stuck to the strawbe ry. The apple, pear, peach. cherry, grape, blackberry and raspberry are just as successfully rown as strawberries. If the latter fail, either in crop, prices, or ability to market, others come in. A variety of fruits is also always more profitable than one alone.

Clover, lucerne, lupines and other deep rooted forage plants g ow here remarkably well. Stock could be raised admirably on the soiling system, and the manure heap be increased amazingly in value, and this is a great item in such soils as Hammonton. Now hay, butter, meat, bread and every thing has to be brought from a distance. No city ever gets wealthy that has to send every thing away in order to bring every thing back. It is on the contrary when th y use every thing themselves and send away only the surplus that wealth begins. The managers of the settlement should bear this in mind. A ready the present system is weakening. The strawberry crop was a little ahe d of the capacity of the population to gather it. By encouraging a class of consumers amongst them this would not occur.

Altogether we were much pleased with the appearance of things, and only, as we have said found too much tendency, while suggesting improvements, to stop our mouth with the everlasting strawberry.

We should say that any man with industry, energy, and particularly judgment and foresight, may do as well at Hammonton as in any part of the world.

During the fair Governor Ward addressed the assemblage, praising New Jerseymen for their intelligence, and Hammontonians especially for their energy and perseverance, and who, the Governor told us, "*imbibed* morality with their *strawberries*," by which we suppose, in this part of the wor d, they drink strawberries w.ole.

Returning to the cars for Philadel, hia we found thousands of b xes loading on the cars,—strawberries bursting from the boxes paved the sandy road,—fashionable city ladies, who had been drawn out to see the sights, fancied they were country market gir s, and cried "strawberries" from their carriages. The boys came through the cars peddling "strawberries" at every station along the road,—the sun in his setting seemed one immense strawberry, and we thought we saw strawberries instead of stars in a national flag which was waving in the breeze. We felt two en rmous berries weighing heavily on our eyelids as the cars trotted along, and we might never ha e awoke again to pen these lines, but for the fortunate appearance of half a dozen dirty pigs flounderi g in a bog which broke the spell and we felt we were ourselves once more.

The Representatives of the Farmers' Club of New York were also at the Fair; and the smiling face of Ely, the President; the thoughful one of Meeker, of the *Tribune;* the earnest one of Todd, of the New York *Times;* and the flowing white locks and beard of Solon Robinson, added additional in'erest to the occasion.

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Hints for August.



FLOWER-GARDEN AND PLEASURE-GROUND.

Landscape Gardening has not quite the same idea to an American as it has to an European. In the old world it appeals to the eye and to the mind. It is an intellectual art. But our wants are more material; and the art must look after our creature comforts somewhat, as well as afford us pretty sights to see.

For a month or two in spring, when all nature is gushing forth joyously into life, we are content to look on and enjoy the wondrous sights; and when in fall the whole universe sparkles in autumnal tints, we gaze on the splendid pageant passing away without a selfish thought; but broiling, sweltering, roasting under our August suns, we feel that our garden art must do something more for us than show us beautiful sights like these.

We have learned to protect ourselves from cold wintry winds, but the art of making a place cool in summer is yet in its infancy. There is nothing accomplishes this better than *plenty of grass*, and the neat deciduous tree foliage. The making of flower beds with box edgings and gravel walks suits Dutch and French gardening, but it is too hot for us.

The beds should be cut in grass. The walks round about a place should also be in grass as much as possible; only those likely to be frequently used should be gravel walks. Even these where tan can be obtained, are much cooler when this material can be used, than when gravelled. In the planting of roads, art, as we read it in the books, plants only in corners, and makes its most striking effects to be seen from the drives; but American art, as it should be, plants all the chief drives with deciduous shade trees, and yet allows you to look through beneath them to the beauties beyond.

The best kinds of deciduous trees for this purpose are the Silver, Sugar, Sycamore, and Norway Maples; American, and where the borer is not troublesome, the English Linden, American and European Ash, Horse Chesnut, Magnolia tripetela and acuminata, with its first cousin the Tulip tree; the sweet Gum, Elms, Kentucky Coffee and Oaks of all kinds. For farm roads the Cherry, Black, English, and White Walnuts, Chestnuts, and even the Pear may be employed. Besides these in the South there are the Mimosa, the Melia Zederack, Magnolia grandiflora, which, though an evergreen, has the lightness of a deciduous tree, besides Live Oaks, &c.

But besides the selection of trees for drives, weeping trees should be liberally introduced, some of which like Weeping ashes, make cool and shady arbors preferable to any the carpenter's hand could make. Of these are the large varieties of Weeping Willow, Weeping Sophora, Weeping Birch, Lindens, Elms, &c., though none equal the Ash for arbor purposes.

Then again very much may be done by planting two or three trees together so that as they grow up, they will form natural seat backs. For this purpose there is nothing like the Oak tribe.

Sometimes we cannot get the coveted shade because we have planted slow growing trees—generally the prettiest and well worth waiting for,—this may be effected by planting liberally of Alders, Poplars and similar ephemeral trees, to be cut away as they gradually interfere with the permanent kinds.

The planting season will soon come around, and now is the time to look about and select the desirable kinds, and to decide on the proper places to set them.

The latter end of August is one of the best seasons of the year to transplant evergreens. The young growth of the past season has got pretty well hardened, so as to permit of but very little evapora-

tion,—and the earth being warm, new roots push with great rapidity, and the tree becomes established in the ground before cold autumn winds begin. The chief difficulty is that the soil is usually very dry, which prevents much speed with the opperation; and the weather being usually very warm, the trees have to be set again in the ground almost as fast as they are taken up; so that it is not safe to bring them from a distance. It is as well, therefore, to make all ready in anticipation of a rain, when no time may be lost in having the work pushed through. Should a spell of dry weather ensue,—which in September and October is very likely,—one good watering should be given, sufficient to soak well through the soil and well about the roots. A basin should be made to keep the water from running away from the spot, and to assist its soaking in. After being well watered, the loose soil, should be drawn in lightly over the watered soil, which will then aid in preventing the water from drying out soon again.

As soon in the fall as bulbs can be obtained, they should be planted—though this will not generally be the case till October,—but it is as well to bear in mind that the earlier they are planted, the finer they will flower.

Towards the end of the month, and in September, evergreen hedges should receive their last pruning till the next summer. Last spring, and in the summer, when a strong growth required it, the hedge has been severely pruned towards the apex of the cone-like form in which it has been trained, and the base has been suffered to grow any way it pleases. Now that, in turn, has come under the shears, so far as to get it into regular shape and form. It will not be forgotten that, to be very successful with evergreen hedges, they ought to have a growth at the base of at least four feet in diameter.

FRUIT GARDEN.

If you conclude to plant strawberries this or next month, as many do, see that the ground is well rolled after digging, and the plants not set any deeper than they grew before. If the weather be hot and dry when planting, put the roots in a basin of water before setting them in the dibbled hole. Use plants that have not been crowded, and do not cut the leaves off. If the plants have been drawn, and you cannot get any other, you must trim away a few or the whole plant will wither up. Large growers will plant the way they find by experience to suit their circumstances, but for garden culture the best way is to set all you want in one large bed in rows 18 inches apart, and the plants 4 inches in the row, letting the plants run together in the row, but hoeing out all the runners that would bring the rows together.

Many have difficulty in getting raspberries and blackberries to grow well at the regular planting season. If the young suckers are taken up now and carefully transplanted without allowing the plants to wither much they take very well and a season is saved thereby. If the suckers are more than six inches long, best pinch out the tender heart.

Much controversy has existed as to whether grape vines grown a season in pots be as good as those grown only for a month or so before putting out in the open ground in spring. One thing is certain, if any can be got in pots and set out during this or next month they will take root and do well. We would rather have a good one year old to get and set out now than a two year old transplanted from the open ground in fall or spring.

This is the season when summer pruning fruit trees is recommended. This must not be done indiscriminately, and without an object. Remember summer pruning injures vitality. It brings trees into a bearing state earlier, but if the vitality is already weakened, as it often is by the mere fact of dwarfing, we must take care not to go too far with the pinching.

HOT AND GREENHOUSE.

Preparations must now be made with a view to stocking the houses for the next winter and spring's use. Geraniums of all kinds may now be readily struck. A frame in a shady place, set on some light sandy soil, in the open air, affords one of the best places possible for striking all kinds of half-ripened wood. A partial shade is at all times best for cuttings at the start, though the sooner they can be made to accustom themselves safely to the full light, the better do they usually do.

Seed of many things may also be sown for winter and spring blooming, particularly Cineraria, Calceolaria, Pansy, Daisy, Chinese Primrose, and some of the annuals. Great care is necessary with the Calceolaria. The seed is so small, that it rebels at the smallest covering of soil. The best way is to sow it on the surface, water well, and then cover with a pane of glass until fairly germinated; this will prevent evaporation and consequent drying of the seed. Almost all kinds of seeds germinate most readily in partial shade; but as soon as possible after germination, they should be inured to as much light as they will bear.

Many kinds of greenhouse plants, as Oranges,

Lemons, Camellias, ect., may be inarched or budded at this season. The process of inarching is simple, and consists merely in bringing the shoots of two different plants together. The bark is very lightly shaved for half an inch or more on each shoot, which are then both tied together, and in about two months the union may be examined, and if found sufficiently strong, the scion may be separated and suffered to go for better or for worse with the stock you have selected for its helpmate through life.

VEGETABLE GARDEN.

Towards the end of the month, a sowing of Spinach may be made in rich soil, which will come in use before winter. That desired for winter and early spring use, is usually sown in September in this region. A few Turnips may be also sown for an early crop, but will be hot and stringy unless the soil is very rich.

As fast as Endive is desired for salad, it should be blanched. Matting thrown over is the best for this purpose, as the plants are not so liable to rot as when pots or boards are employed. In cold or mountainous regions, Melons are hastened in the ripening process and improved in flavor, by a piece of tile being placed under the fruit.

Celery will require earthing up as it grows, to get it to blanch well. It is not well, however, to commence too early, as earthing up tends, in a slight degree, to weaken the growth of the plants. Take care, also, not to let the soil get into the heart in earthing, or the crown is apt to rot.

At this season of the year, more than perhaps at any other, it is important to hoe and rake between rows of growing crops. A loose surface soil not only admits the various gases that the roots luxuriate in, but it also prevents evaporation and checks a too great absorption of heat, and then, besides all this, the weeds are kept down, and neatness and order reigns. After every heavy shower, if the time can at all be spared, the hoe and the rake should be freely employed.

In another column we refer to planting Asparagus this month. What we say there is true of Rhubarb and many root plants. If put in early, so as to have time to push out a few fibres before winter comes they will push out very strong next year, and a season of growth is saved thereby.

WINTER FLOWERS.

BY W. C. STRONG, BRIGHTON, MASS.

Read before the Pennsylvania Horticultural Society.

No thoughtful mind can have failed to notice the economy of the Creator in adapting the fruits of the earth to the necessities of man. Not only do we find each climate provided with its most suitable fruit, but we notice also, in many instances that different varieties of fruit are so arranged, in such fit succession, as clearly to indicate a wise design. In our temperate climate, for example, we recognize the wise adaptation of our successive fruits to their own particular season, each species coming to maturity at the precise time when its qualities will be most serviceable to man. It would prove a vast mistake to transpose the time of maturity of the luscious peach, or the pear, or even the juicy and vinous grape from autumn and make them to succeed the bilious period of spring. Wisely have we received instead, the brisk acid of the strawberry and the cherry; to be closely followed by the currant and other similar small fruits, and afterward by the more noble, high-flavored and refreshing fruits of autumn, for the full enjoyment of which, the influences of the season seem to prepare the physical system.

It is indeed true that fruits out of season often command an exorbitant price; but strawberries in March, at fifty cents each, and cucumbers at one dollar, do not mislead any one into the belief that March should have been the natural season for the strawberry and the cucumber.

To a limited degree it is desirable to hasten the maturity of some fruits and it is an equally desirable art to retard and preserve others for winter use. Such luxuries become almost a necessity for the sick, and they are regarded by many as an indispensable ornament at fashionable entertainments. But our fruit dealers will tell us that the demand is only for very moderate quantities. They display winter pears by the dozen and grapes by the single pound, not because this is their whole stock in trade, but rather because they know "how much 'tis best to show." The substantial apple is an exception to this rule—it seems to be specially suited for winter use—but of most other fruits our markets will not bear anything like the same quantity in winter that is demanded in autumn. The laws of our physical system are in accord with the economy of Nature. Fruits out of their natural season are a luxury and not a necessity.

Fruits and flowers are almost as inseparably joined together as are husband and wife. Much mutual advantage do they gain by their connection, and

there can be no desire to divorce that which God has thus united. Yet fruits and flowers are totally unlike in their uses, and what may be predicated of one is wholly untrue of the other. Flowers are material in substance, yet they may be said to be the nearest approach of the material to the spiritual. In their true nature and use they are neither to be eaten, or to be worn, to be bought, or to be sold, or to be prostituted for vulgar display.

By their innocence and spotless purity—by their subtle odors—by their marvellous mechanism—they are designed to lead from the seen to the unseen. Frail, transitory, artless as they are, they yet have the strange fascination and power to transform, to refine and to inspire the strongest, nay even the coarsest natures. This influence is not tangible; it is indeed so subtly imperceptible that it is rarely recognized. Yet who can doubt that in all the country homes of our fair land the pervading presence of the bright and cheerful flower-plat has had an elevating and a refining influence which in the aggregate has been mighty for good? With what wealth of prodigality are the hill-sides and the meadows decked with daisies, asters, golden-rod and the myriad forms of beauty and joyous innocence in which even our Creator seems to to take delight, as he scatters them with such bountiful profusion over the earth!

Dwellers in the country can "Go forth into the open air and list to Natures teachings;" but how shall we bring these influences to bear upon the busy and care-worn denizens of the town? The profusion of flowers in broad fields and dewy woods, or the more regular beauty of gardens they cannot have; yet in a seemingly unnatural way they can have all the higher influences of flowers, at all seasons and in all places. Unlike fruits, flowers are never out of season, or never out of place. They grace the drawing-room—they cheer the festive board—they add beauty to the bridal scene—they are like a ray of sunshine to the weary and desponding soul—they speak words of comfort in the chamber of sickness—into the house of death they bring gleams of light and love; severest test of all, they are sweet emblems even upon God's altar. Severed from their parent stock, they seem not less vital, nay perhaps even more spiritual than when they drew their life from mother earth.

How shall the use and the influence of flowers be extended in our cities and large towns? This is a practical question, deserving careful consideration. The present value of the flower trade is much larger than is generally supposed. A few items may be mentioned as indicating the extent and the peculiarities of the trade. In our larger cities it is no uncommon thing to supply flowers, at a reception, a bridal party, or a funeral to the amount of $200, or $300. Indeed this is often exceeded in New York; one reception party being mentioned where the flowers alone were valued at $1500. On New Years day 1867 one of the principal New York dealers sold flowers to the amount of $6000 and the entire sale in the city on that day probably reached $50,000. One of the most prominent and reliable florists of New York estimates his crop for the past year as follows:

Camellias about	45,000.
Bouvardias "	20,000.
Carnations "	70,000.
Double Primroses	100,000.
Violets	100,000.
Tuberoses	50,000.

Eupatorium, Poinsettia, Cape Jasmine, Stevia, Heliotrope, Cissus, Rose Geranium, and other plants in considerable quantity.

A slight index of the trade is seen in the fact that the four or five principal New York florists each use wild evergreen, or Ground Pine as it is commonly called (Lycopodium Dendroideum) to the amount of over $4,000 annually. Judging from these items, together with such other estimates as I have been able to obtain, I incline to think the total annual amount of sales of flowers in New York is about four hundred thousand dollars. After making considerable inquiry, I come to the conclusion that the annual sales in Boston will amount to about two hundred thousand dollars.

Extending this basis to the other cities of the Union and we have some impression as to the magnitude of this interest. Were these figures an index of taste and a genuine love of flowers we might well be satisfied and felicitate ourselves upon the cultivation and refinement of our people. But we have to go deeper and examine the character of this trade. It is the statement of the principal dealers that the larger part of their sales is for bridal parties, for receptions, and for funerals, or in other words for the purpose of display. The genuine love of flowers is often entirely wanting in this display. And if to this use we add the important item of gift bouquets, we shall see that there are few who buy *con amore* for home enjoyment. Let it not be understood that we object to the use of flowers for ornament and display. Nothing is more fitting, in all places and upon all occasions, provided good taste is observed in the arrangement. The fact that some drawing-rooms are bedecked with flowers, gaudy, glaring and obtrusive as the hostess of the

occasion, or that a bouquet in the hand of a corpse only serves to make death appear more hideous, does not change the rule that these simple gifts of nature are most perfect ornaments of the parlor and the most touching emblems at the grave. If it is true that a desire for display is offensively apparent and shocks us at the funeral service, yet in general this use of flowers is wholesome and should be encouraged. Our aim should be that this use should be improved and the public taste be educated and refined.

Florists have a work to do in this regard. For example take the prevailing style of flower pieces in New York. It is the offspring of this general desire for coarse, stiff, vulgar, unnatural display. "An even surface," is the inflexible rule. And so the wide faced Camellia and the tiny Cyclamen, the delicate rose-bud and the ragged Carnation are built up with Lycopodium, to a solid, even surface and thus the poor innocent flowers are so transformed from their true nature as to glare any sensitive soul quite out of countenance. This arbitrary rule applies to bouquets, baskets and all kinds of work, to a surprising degree. As a consequence, naturalness and grace are at once and forever abandoned qualities; size and color are the *sine qua non;* long stems are shortened, short stems are wired up, the Camellia is advanced to the rank of queen and the modest Ericas and Stevia are lost in the dazzling brilliancy. Undoubtedly this style favors the utmost breadth and contrast of color and is the most economical use of material. It also allows great variety in form, curious shapes and devices, hearts, crowns, monograms, initials, ribbons, &c., &c. In some cases and to a degree these unnatural and artistic effects are striking and pleasing. They are clear and positive and unmistakable in their character. On the lawn or in the garden, we feel the necessity for distinctness, breadth and strength of color. To this end the ribbon style of planting is to some extent in vogue. Harmony and distinctness in color are equally desirable in flower pieces, but the work need not, nay, must not be staring and obtrusive. Let the motto be naturalness, and the highest art will be attained. Seek in all work to preserve as far as is possible the individuality and characteristics of each flower. The true beauty and the true meaning and influence of flowers will then be felt. Or, if otherwise, if flowers are arranged merely for gaudy show, then in time their use will to some extent become vulgar and be in a degree coupled with gaudy tapestry and gilded walls and pretentious paintings and other glaring insignias of the suddenly rich. While New York and Philadelphia are in advance of Boston in the extent and skilful culture and generous use of flowers, I must be permitted to add that an important lesson may be learned from the latter city in taste and art in using these floral products.

A practical and important point remains to be considered. It has been stated that a large proportion of flowers used, were for the purpose of display or because custom required it. The result of inquiries leads me to estimate that nearly one-half of all the flowers sold in New York are for balls and festive occasions, which is a much larger proportion than in Boston. Probably about forty per cent are for bridal and funeral purposes, the latter being considerably in excess of the former. But when you ask what proportion of flowers are bought in single pieces, for nosegays, or as small bouquets for quiet home enjoyment, you are told that the amount is so inconsiderable that most dealers do not care to trouble themselves with this small item. Instead of finding the largest use in this true way, it is considered an insignificant and scarcely desirable branch. For this result the florist, the dealer and the public are answerable in common. Heretofore flowers have been produced at too high cost. They have been grown in costly houses, or on a limited scale, so that only a reasonable profit has been realized when the shopmen have retailed Camellias at an average of 50 cents, Roses at 12 to 20 cents, Carnations at 10 or 12 cents, Bouvardias, Heliotrope, Eupatorium, and trusses of similar character at about 6 cents. Now these prices do not seem high and yet they are too high to allow the common use by common people and in generous quantity. But this is the use which is most genuine and healthful—by far the most important to the public, and we can but think it may be made a large interest to the florist, provided he will do his part in elevating the public taste and meeting this honest enjoyment of flowers at reasonable prices. Steps are taken in this direction, especially by the Germans around New York, who grow cheap flowers, which are made into nosegays by the housewife and which are sold, at the ferries, hotels and in the streets, during the warm months, at 10 to 25 cents each. This is well; but this is not sufficient. A higher grade of flowers should be brought into use and the principle should be applied to the winter months also. That there is no difficulty in doing this, we may easily see.

Take the cases of Mr. John Henderson, of Flushing, and Mr. Peter Henderson of South Bergen near New York. Each gentleman has extensive ranges of cheap houses, where immense quantities of flow-

ers are grown at the least possible cost. At a recent visit, I judged that each of them must cut, during this winter, at least 100,000 Carnations, and though their variety was not extensive, yet of Bouvardia, Tuberose, Violets and other free-flowering plants, the crop was proportionately large. These gentlemen regard $2 per hundred a remunerative price for Carnations at wholesale. Indeed they were sold at $1 per hundred, when the crop was at its height, and still the crop pays. Now, with these figures as an illustration, the question arises, can flowers be furnished at such cheap rate that the masses will buy them? Certainly the Messrs. Henderson and others laboring in the same direction seem to be in a fair way to test this question and they deserve credit and encouragement.

But there are two difficulties to be met. The dealers are not inclined to enter into this small trade, not merely because of its smallness, but more especially because the common use of flowers would in their opinion make them unfashionable. It is with a feeling of indignation that we must admit that there is some force in this view. Yet the products of our Greenhouses are of such rare and exquisite beauty and grace that they may well be described as "indispensable." The rulers of fashion cannot afford to place them under ban. Moreover there are many kinds of flowers so rare and costly that the foolishly extravagant may find ample latitude for lavishing their wealth without coming in contact or competition with the more humble lover of Nature. Are diamonds out of vogue, because the servant girl is profuse in the use of glass brilliants? But a more serious difficulty lies in the fact that there is so little real appreciation and fondness for flowers. Here is where the educating process must be begun and carried on. Many influences may be brought to bear and very positive results may be expected to flow from this practical philanthropy.

It must be a work of time to introduce flowers to general and familiar winter use. Yet this can be done. Let our florists aim for cheap production, let them attempt to cultivate a more correct taste, let them endeavor to gain more direct access to the public and in time they will find that these now despised drops will out measure the costly orders of the wealthy. Let them learn a lesson from their own art, seeking to extend the refining influences of flowers, not content with profit in business merely, but aiming also to be real benefactors of mankind. To develop or extend the influences of Nature is, in a sense, to enter into work of the Creator.

DECIDUOUS SHRUBBERY, TREES, AND HERBACEOUS PLANTS.

BY WALTER ELDER, PHILAD'A.

Evergreen Trees, by their shelter in winter, are like guards of a castle in times of cruel war: they break the force of cold blasts as the guards repel all assaults. Shrubbery are like *ladies*, who flit out in new dresses in colors so various and pretty, to adorn the ways of mankind.

Forsythia is first dressed in a bright yellow gown, with joyful tidings that winter is gone.

Daphne mezereon is a miniature tree 2 feet high, with dark pink blooms, of sweetest perfume.

Cydonia japonica, one shines in bright scarlet, another in white.

Deutzia gracilis, four feet broad, two feet tall, with silvery-white blooms.

Amygdalis nana, a pink and a white, with double Daisy-like flowers.

Spiræa, prunifolia and Reevesii, double, white blooms, like shirt buttons.

Syringa, (Lilacs,) both purple and white; all fragrant and beautiful.

Lonicera tartarica, Honeysuckle blooms; pink, lilac and white in profusion.

Laburnum, rich yellow blooms; like racemes of gold.

Magnolia purpurea, large, purple flowers, like cups at a festival of Flora.

Philadelphus, white, odoriferous blooms, in thousands they show.

Weigelia rosea, bright, rosy bells, of exquisite splendor.

Calycanthus, brown, sweet-scented blooms; a favorite with ladies.

Berberis, (Berbery,) gold bead looking florets, of Hyacinth perfume.

Deutzia scabra, tasseled all over with scooped bloom bells; pure, paper white.

Viburnum opulus, large masses of flowers, the color and form of "snowballs."

Robinia hispida, large racemes, like rosy pink satin, most gorgeous and grand.

Ligustrum, fragrant, white spikelets, of small, waxy blooms.

Chionanthus, finely fringed around with pendulous, white flowers.

Rhus cotinus, looks like a light cloud on the Moon when in bloom.

Hibiscus, (Althea,) large, double roses, red, purple and white.

Euonymus Europeus, blooms of maroon, and berries of scarlet.

Sorbus, (Rowan tree,) white florets in clusters, followed by red "Rowans."

Symphora racemosa, pink florets in Spring, white berries in Autumn.

It is unnecessary, here, to expatiate upon the beauties and fragrance of flowering shrubbery, and the elegance they impart to pleasure grounds, as every body admires them, and every body who has land can grow them. Upon almost every kind of soil, situation and exposure, some of them will flourish. Some are in bloom from March till September, and from September till December. Some are adorned with ornamental fruits. The above list will afford a pleasure for nine months in the year; some of them make beautiful hedges, and can be pruned into almost every form.

The following are flowering trees of great beauty: Double-flowering Peaches, red, white and scarlet; Magnolia, all species; Double-blooming Cherry; Cercis Canadensis and siliquastrum; Dogwood, English Hawthorn, Scotch Laburnum, Kolreuteria paniculata, Catalpa syringifolia, Halesia or Snowdrop tree, Robinia, several species; Paulownia tree, Buddlea globosa, our common Wild Cherry, &c. &c.

In rural life, shade in summer is necessary; and no kind of shade is so refreshing as that of Deciduous trees. They not only screen us from the sun's rays, but they also cool the atmosphere under their branches; and it is pleasant to sit or stand beneath them on hot days. The trees also embellish the grounds, and give them that noble appearance which is universally admired upon new and bare grounds. Many rapid growing trees should be set out, to give an earlier shade, to last until the more fancy species grow large enough. What an awful calamity it would be if we had no trees!

The majority of hardy herbaceous plants are hid under ground during winter, or wrapped up in bulbs or tubers, evidently laying up a store of goods which they will display in due time. When spring arrives and summer comes, they issue forth from their places of concealment and, spring messengers of joy, they soon adorn the grounds with the beauty of their blooms, and perfume the air with their sweet odors.

From the time that Snowdrops and Violets appear, in February, the various species and varieties follow each other in regular order, and keep up a constant succession of bloom till Tuberoses and Chrysanthemums are cut down with the frosts of December.

How pretty the pendulous blooms of Dicentra! how gorgeous those of Pæonia; how splendid those of Iris, Larkspur, Monk's Hood and Campanula, of all shades of shining blue; how elegant all the Phloxes; how beautiful and fragrant the blooms of Hyacinth, Narcissus, White Lily, Gilliflowers, Wallflowers, &c. See the endless varieties of Aster, Chrysanthemums, Dahlias, Dianthus, &c., and also those of Lilium, Tulip, Gladiolus, &c. Antirrhinum, Aquilegia and tuberous Iris have many improved varieties, and so have many other genera, too numerous to name here.

STRAWBERRY GROWING.

BY MR. J. THOMPSON, CLEVELAND, TENN.

In the June No. of the *Monthly* you recommend nurserymen to get 2-inch pots for the runners of Strawberries to root in, which induces me to give you my experience in that line. We commenced to force Strawberries at Sudbrooke Hall, Lincolnshire, about 1848, and it was my work to pot the plants. We used about 2000 pots of different sizes, from "32s" to "60s," large pots we used three plants to a pot, and small pots one plant. We tried several different plans; among others the one you recommend,—but we left it off on account of the labor of watering.

The plan that gave us most satisfaction was:—mix three parts rotten manure with one part loam: take out the soil with a garden trowel large enough to hold a 2-inch pot; fill the hole with the compost, and peg the runner down on it; and in a short time it was a mass of roots, and could be taken up with a trowel, and be as sure to grow as if in a pot, and, I think, they could be sent to any part of the country with as much certainty as if they had been in pots.

In former numbers you recommend the new Strawberry house for forcing strawberries. I think there will not be very many to adopt them, now that the South is open to Northern enterprise. We are planting largely out here, with the intention of supplying the Northern markets; and as we get them from 3 to 6 weeks earlier than you do, there will be no necessity for forcing.

[The plan of Mr. Thompson is an excellent one where pots are not to hand. We omitted to say in our article, however, that the small pots are to be plunged in the ground level with the rim, and they will need no watering.

We should like to see the experiment fairly tried between strawberries from the house and fruit ripened a long way off. We have expense from transportation, and injuries from decay, against growth on the spot and prime quality. It is not always the *mere strawberry* which pays. When we were in New York, last month, poor strawberries found no

buyers, though offered at 5 cents per quart. They were pronounced a drug, and many were being thrown into the river. At the same time, Knox's glorious Jucunda's, not disgracing our cut of them, were sought after at 35 cents per quart. We note this to show that there are many points in Strawberry growing for profit to be considered besides mere earliness in ripening.—Ed.]

VALUE OF NEW SEEDLING FRUITS.

BY A KENTUCKY READER.

Gardener's Monthly! The community owes you a debt of gratitude for the able and fearless course you have pursued with regard to the many humbugs in the horticultural line, which mere money makers, from time to time, would have the people buy of them. When we reflect on the millions of dollars annually squandered on worthless things with fancy praises, or old things with new names, your eminently conservative course is the proper one to pursue.

So much, I will concede, is due to you, and yet, methinks, you are too severe on some things. If the new things are no better than the old ones were, still seedlings are a necessity; and this I will try to make plain in the following few lines:

I need not refer you to Knight's Theory of the wearing out of varieties. You and the reader know all about this. On looking back over your past volumes, while I write this, I think you are not a believer in this natural wearing out of varieties, and yet the experience with new varieties of small fruits seems to bear out the fancy of mine that there is something in it. This, I think, is the meaning of what you have taught yourself. I find that, particularly in regard to raspberries, you have said of their hardiness, "all seedlings are generally hardy when in their youthful vigor, but after they have been in cultivation a few years, the hardiest often becomes tender like the rest;" and in this you are right. I know very well when Brinckle's Orange, and later, the Allen Antwerp, were particularly recommended for their hardiness,—and they were hardy with me then, but neither are now.

It has been so with Grapes, Blackberries, Strawberries, and many other things. They all usually do well when they first come out as new seedlings, but after I have had them a little while I find they do not resist diseases any better than others I have used before.

Some time since you referred to seedling Peaches, doubting whether ungrafted seedlings were less liable to disease than worked ones. I think, from what I have seen in Virginia and North Carolina, that they are certainly less free from disease. They ought not to be, perhaps, according to physiological rules, but I think the experience of orchardists will bear me out in saying that, science or no science, seedling Peach trees are much less free from disease than others are.

Now, I think, flowers as well as fruit will show that seedlings have much more vigor than plants raised any other way. Before the war I had a small greenhouse near Richmond, and used to be fond of raising seedling Verbenas, Geraniums, &c.,—and these, invariably, were less liable to mildew than plants from cuttings. The Verbena, particularly,—for this, indeed, I often depended on rather than on cuttings, which frequently were so bad from cuttings as to be nearly worthless. These seedlings, after a few years' cutting from, became as bad as the others: and it was only by a continual succession of seedlings that I could keep a good stock of Verbenas on hand.

These, I think, are good arguments in favor of a continual introduction of new seedlings in the market. The public must not expect them to be any better than the old ones, but remembering that the old ones degenerate, and that seedlings are necessary to *keep up*—if not to improve—the grade.

[This is a very ingeniously contrived article, partly right and partly wrong, and hardly to be decided whether written in the interest of science, or in favor of some seedling fruits of wonderful *promise*. We are praised for opposing new seedlings which prove to be no better than old ones, and yet new seedlings are a necessity to keep up healthy stock, even if no better than old ones. If this is really so, every one can go to raising their own seedlings, as they do peaches in some places, and there will be no need of buying these wonderful novelities at wonderful prices. But we are not altogether satisfied with our Virginia friend's facts. Peaches may be as he says, though we did not suppose the difference was so marked. Dr. Stayman has recently shown that severe pruning, though necessary to achieve particular objects, is yet a severe check to vitality; and the cutting back to the bud of a young seedling peach *may* have some influence on its permanent health. This we leave open for future investigation.

The Verbena seedlings also make a good point; but as to fruits, we find that of Grapes, very old kinds—such as Elsinburg, Clinton, and we may begin to add the Concord amongst old ones,—are outliving hosts of newer ones; and as for Strawberries, in this vicinity, the most popular of all kinds are the Wilson's Albany, Triomphe de Gand, and the very

old Hovey's Seedling,—while the innumerable new ones go under as fast as they bob above the surface. We see this is also the case in other parts. In a recent number of the *Southern Cultivator*, Mr. Berckmans, after noticing the behavior of many new ones, winds up by saying:

"I have met with so few good varieties among those lately originated that I am yearly more confirmed in the opinion I expressed several years ago in regard to the Wilson's Albany, that 'it was *equalled by few others and surpassed by no variety*,' and I am satisfied that those who have carefully cultivated it and compared with other varieties, will fully concur in this opinion. Not only is this true for this section, but, as a proof of its value, there is no variety so extensively cultivated in New Jersey, Long Island and Philadelphia, than Wilson's Albany, — notwithstanding the numberless highly-heralded new varieties which have been introduced within the past five years. Every year seems to add to its popularity, and I, for one, am satisfied to cultivate the Wilson as a berry containing more good qualities than any other in cultivation."

Now, not to be misunderstood, we may say that we do not oppose, but encourage, the raising of new seedlings,—but when we are told that this or that seedling is to be the greatest boon ever conferred on man, and we are to pay enormously for the privilege of participating in this boon, we think we may be pardoned for advising, in view of the past history of seedlings, *to wait and see*. Our correspondent's arguments really tend that way. For what is the use of paying roundly for a new seedling if, *by a natural law*, we ought to pay roundly for another, to replace it next year or so.—Ed.]

ARE HOT WATER TANKS NECESSARY FOR PROPAGATION?

BY J. M.

Having had several cases of disappointment in regard to tanks, brought to my notice, I have been induced to ask the above question, from a conviction on my part that they are not of such vast importance to the majority of propagators as generally supposed. I have known several cases where they have been erected for their fancied great superiority, and have proven themselves an evil, and have been in the end abandoned as an incumbrance. The difficulty seems to be that they produce so much moisture that an enormous and otherwise an unnecessary heat becomes requisite to counteract their evil influence. We find that plants which otherwise would thrive at a temperature of 60° are killed by the moisture completely rotting them.

I have frequently observed this and have felt that although under some circumstances tanks may be beneficial or even essential, yet the many small propagators would be benefited by being without them. In the month of December, January and February, a propagating house will be found to contain sufficient moisture, for all necessary purposes and bottom heat can be conveyed to our plants without the aid of hot water tanks. I have known cases where tanks have been in use, and the consequence has been, that one-third of the house became useless, from the excessive moisture, the following winter the tank was discontinued, when with the same temperature, plants grew well in the previously unoccupied space, and the number of plants propagated were far more and better than previously. I am sensible that tanks can be constructed so that no moisture can escape, but they become merely a medium for the conveyance of bottom heat. This can be done in other ways, with far less cost than the constructing of a tank, and the question is, whether the benefits of a tank, constructed perfectly air and water tight are so great as to counterbalance the extra cost of such construction. I do not think it does, and believe that as many plants with less cost could be propagated without the use of them.

[This is a question of profit and loss. If there is fire enough a house can be made as dry by a properly arranged tank as by any other mode of heating; and on the other hand if a house be naturally damp, the best flue will not prevent the plants from damping off.

Our experience seems to be that for a small house the flue is the cheapest and best, but for a large extent of glass the hot water systems are cheaper than many fires would be. We should however be glad to have the experience of other gardeners, for although every one talks as though this was a settled question, it is not so by any means.]

TREE FERNS.

NOTE BY MR. FENDLER

In the April number of the *Monthly* page 120, I find a little mistake (perhaps a mere slip of the pen), about the height of tree-ferns, which I cannot pass without bringing to your notice. Tree ferns have always been the favorite class of plants with me, and hence I paid particular attention to their size, habit, shape and species. I lived for years in one of the best fern regions of South America, where it was easy to count more than a thousand tree ferns in a single day, and I can assure you that I have met with many from twenty to forty feet high.

Forty feet is, however, the maximum height of tree ferns, so for as my observations go.

I once cut down and measured carefully a specimen of *Balantium Karstnianum*, No. 57 of my collection of ferns, and found the length of its stem up to the base of the fronds forty feet.

IMPROVING EXHAUSTED LANDS.

BY PROFESSOR BOOTH, PHILA.

Read before the Philadelphia Society for Promoting Agriculture.

A farm of some sixty acres having fallen into my hands in the year 1860, I determined to make it pay an interest on the cost, until some other disposal might be made of it in the future. Upon calculating the cost of buying and hauling stable manure from the city or vicinity, (five or ten miles) I found it would be cheaper to buy and haul a so-called super-phosphate. I therefore determined to attempt improving my miserably poor farm by the latter alone, trusting to increasing produce, so as to render it at least independent of the purchased manure.

The table below will present all the necessary facts in relation to the farm from its briery poverty in 1861 to its plethoric falling down of wheat and clover in the late rains of 1867. It contains about 60 acres, of which only 40 have been in cultivation. The gross sales of everything that could be scraped by industry in 1861 was $219 36, showing the poverty of the farm. The rotation system, common in our vicinity, was followed, viz. 1 Corn, 2 Oats, potatoes, turnips, etc. 3 Wheat, 4 and 5, or 4 5 6, Clover and Timothy. Of course we used the little stable manure made at first as judiciously as we could, but two or three cows fed from poor land only covered an acre or so with a delicate gauze of manure. This was subsequently improved, as increased production and of better quality increased our stock, so that in the spring of 1867 the six acres in corn and potatoes covered with manure looked jet black, leaving the ground scarcely visible.

The starting point of the improvement, its main source to this moment, is a phosphate of lime. The composition of the phosphate I used was about 20 per cent. phosphoric acid, of which 5 and 8 per cent were soluble in water, and 1 and 2 per cent potential ammonia.

The quantity I aimed to get into the soil has been about half a ton per acre, trusting to the immediate action of the soluble phosphoric acid, and the gradual development of the insoluble by cultivation during many years, designing to add a little of the same manure in each subsequent rotation. The best method of using the phosphate, according to my experience, is to harrow in some four hundred or five hundred pounds, sown broadcast upon the land, when plowed for corn, and to put two or three hundred pounds more in the hills, together with a little wood ash. Then two or three hundred pounds more should go on the root-crop of the next year, and two hundred or four hundred pounds more be harrowed in, after plowing for wheat, in the fall of the same year. I have thus put 1600 to 1100 pounds on every acre, as it came in the order of rotation.

My conclusion as to the best method of improving farms at a distance from cities, which are, or which should be, the great sources of fertility, is this: To improve the soil by the liberal use of phosphate introduced into the usual rotation system, and then keep as much stock as the farm can possible be made to bear. The phosphates commence the fertility, the stock sustains it. The produce of stock may vary, according to the proximity — milk, butter, cheese, or raising stock for sale.

The advantage of the butter produce is that nothing of mineral value is sold off or removed from the land, except the trifling amount in wheat flour, and in the flesh and bones of the hog. For this reason I have had a butter dairy for several years, with the exception of one year, when a milk dairy was tried.

The following table of the gross sales of produce of all kinds in successive years will show the influence of phosphates alone to improve farming land.

	Gross value of sales.	Cost of feed and Seed.	Net profit on sales;	St'k Cows and a bull.
1861.	$216 36	$40 00	$169 36	2
1862,	235 23	40 00	195 23	4
1863,	1 019 46	19 61	512 85	4
1864,	1 019 41	175 96	843 45	5
1865,	1 353 98	224 61	1 129 37	10
1866,	1 448 96	410 77	1 008 19	13

At the present time, June, 1867, there are fifteen cows and one bull. From thirteen milking cows we have obtained during June an average of some 68 or 70 pounds of butter per week, which is an average of 5¼ pounds of butter per cow, per week. The grass on which these cows have fed has been almost exclusively produced by phosphates, and the cows are the ordinary country breed.

In order to have a fairer view of improvements resulting from the liberal use of phosphates, I should add that the value of the above stock should be added to the profits of the year. The whole

farm is so improved that it would continue to yield largely for some years to come without further improvement.

There is nothing remarkable claimed for Hilltop Farm, and I have merely thrown the above thoughts together at the suggestion of some of the members of the Philadelphia Agricultural Society, to show how a poor farm may be made productive, and even profitable, by the liberal use of phosphates as manure, applied in the usual rotation system to common farming by a plain farmer.

HOW I HAVE EDUCATED MY FRUIT TASTE.

BY PERCIVAL PINKERTON, PHILADELPHIA.

Mr. Editor. My wife and I have not agreed very well together about the merits of certain fruits. The fact is I despise a mean taste. I like that which is elegant and refined. Mrs. P. is all you could wish in the drawing room, and it puzzles me that she doesn't seem to have the same high-toned ideas in the kitchen. You know (I suppose you do, as by a reference in your last number I see you also are a married man) that there will be quarrels in the best regulated system of married life, and our first quarrel was over some wretched Albany Seedling strawberries. Her mother's garden grew them, and she brought me a few hundred to plant in ours. I had not had much experience in gardening, but marrying into a suburban family I concluded to start into a little gardening and matrimony together. I subscribed to the *Horticulturist* and in a number of that periodical learned that the public taste was being degraded by mean fruits, and that it was the duty of all who had refined ideas of what was good to educate the vulgar crowd to a knowledge of what was best for them. Among strawberries the Albany was particularly marked: "a hog would not eat it," said the Editor. I was a little astonished at my wife bringing me such things. I did not like to plant them, nor to remonstrate either, seeing as we hadn't been married long. I had been taught by select paragraphs in the newspapers that every thing was in knowing how to *manage a wife*, I thought I could manage this thing pretty well, and this was what I done. Looking over a Patent office report I saw a magnificent colored plate of a magnificent kind, the Peabody seedling, which according to the account given by the government officials was to be the all-to-be-desired in this delicious fruit. I sent away $20 for Peabody plants, and when they came threw away the Albany's, trusting my wife would never know the difference, and that I should not have to blush when our friends staid to tea for setting such vulgar things as Albany's before them. But alas! When the time for fruit came around the pesky things didn't bear any worth speaking of, and my wife "could not understand it." "Dear," says she one evening, looking suspiciously at the bed, "I think there must be some mistake here. These can't be the Wilson. They always bore, and yet how can it be else, for I dug up the plants myself and gave you." "It is queer," says I, reddening a little, "Meehan says (I had just been reading an old Agricultural paper) strawberries will run into all sorts of kinds." "Meehan! fiddle-sticks" says she, "who's he? They never ran about that way in our garden."

I had never heard her talk so commonplace before and was about to reply in good style, when she picked up a small berry and said with vehemence, "I believe there has been another kind planted. We always have hard work to get the 'hull' off the Albany; with this thing's long neck the 'hull' can hardly be made to stick on." I did not know as much as she, and I began to feel it, and as I had taken your name in vain to save me and that didn't do, I thought best to tell her all! Well, if you ever saw such a storm! For the attempted deception I believe I have never been truly forgiven, but I plead so hard about "educating the public taste," that I think it consoled her for the loss of strawberries that year. On the main point, however, I made up my mind not to give in. I have since been buying all the new kinds as they have severally been brought forward to "educate the public taste;" but somehow we don't get many fruit, and my wife says it is hard she cannot have plenty of strawberries, as her mother always has in her garden; I think it is hard also, but yet I think in view of the immense advantages to the public of maintaining a high standard of public taste, better do without strawberries altogether than encourage such vile things as the Wilson Strawberry.

Of course I went into grape growing. Canadian Chief, Brinckle, Rebecca, Delaware, Clara, and some others, came strongly recommended by the Educators of public taste. I sent a draft for $100 up the Hudson, so as to be sure to get the 'genuine thing.' My wife asked me to add Concord, but I showed her the report of a committee who went to Boston to see it, and the members had all caught the diptheria by eating the berries; I also pointed out that the Editor of the *Horticulturist* had vetoed it; that Iona Island, the centre of grape knowledge had "pronounced" against; and indeed no one, but that little fellow Freas, of the *Germantown Telegraph* had said a word in its favor. This last brought

on another storm, for I did not know that she thought so much of Freas. "His 'household department was the best thing a-going; she had had the paper since she could read and always would, and she had seen more fruit in his garden in 1 year, than she feared she would ever see in *mine*." I did not like 'mine' instead of *ours*, but I swallowed that. The end was I agreed to let her have Concord to put about the house, over the pump, and along the back fences. She has plenty of fruit such as it is, as Mr. Mead happily expresses it in your review, but 'one remove above a fox grape.' But although I had to wait five years before I got a Delaware bunch, and it has not yet done near as well as I know it will after age gives strength to the vine; and although the others have died out altogether, I would not give one bunch of Delaware for ten thousand pound weight of Concord, and I am sure the Educated tastes of your readers will agree with me.

So we have gone on for about ten years, wife and I. She is an excellent housekeeper. Though so deficient in the refined taste for good fruits, she manages to have the table always filled with good things prepared in some way; but as she knows my hostility to the vulgar varieties of fruits, I am sure she uses none of them. In the garden I only gave away to her in one single thing. After long coaxing I agreed to plant 50 Philadelphia Raspberries two years ago. I hated to give the price I did for them, especially as it was boldly announced that it was a fruit only fit for the "million;" but I had persevered year in and year out with my Brinckles, Allens, Hornets, Fillbaskets and so on; tried saw dust, tan, long pruning, short pruning, pegging down, tying up, and every contrary thing, and I really thought the basket required to be filled was rather too small, and the only Hornet was in the house, (Mr. Editor please send this number to my store instead of my private residence if you print this sentence). But I yet have hopes; but to satisfy *her*, I bought fifty, but you may guess I took no care of them, never hoed them, and let them grow as they choose. I put them in a part of the garden near the rubbish and indeed had forgotten all about them. And now comes the curious part of my story, for a week past we have had raspberries all over the house, and supposing my wife bought them in the market I kept praising their good qualities, for they were good, and to day she tells me they are from those fifty plants "behind the barn."

But I am not going to give it up so. I am sure Mr. Parry must have sent us something else for the true Philadelphia. He himself has assented to this not being quite so good in quality as some others, but as my taste is an "Educated one," and this one is "good enough for me," I am sure it is new, and I shall make a new plantation of it next year.

Yours, PERCIVAL PINKERTON.

P. S. Where can I get $100,000 for the whole stock of this new kind?

THE HUCKLEBERRY.

BY W.

In your July number I notice a very flattering notice of Hammonton, N. J., and its Strawberries, but which from personal knowledge I know does not overstate the fact, and exhibits what a few years of judicious culture may do for even a barren sandheap; and as an offset for said notice, permit me to call attention to another settlement of New Jersky,—East Fruitland, on the Raritan and Delaware Bay R. R.,—and its, at present, principal productions.

I was forcibly struck, during a recent visit, with the similarity of some remarks made by you in the article referred to, and the actual circumstances occurring there. The first thing you notice when landing from the cars is Huckleberries; all you hear of (at present) is Huckleberries; the boys are crying Huckleberries through the cars at every station; and you walk on Huckleberries.

The only thing which would make the matter less observable in the case of Huckleberries is, that they are growing wild by the hundreds of acres, while the Strawberries are cultivated by the 10 or 12 acres to each person, and with considerable care and labor. But East Fruitland is a growing village, and also cultivates various kinds of fruit in small quantities,—not to be compared, however, with Nature's own crop, the Huckleberry.

I have often thought it strange that, with such a delicious berry, there was not more trouble taken to cultivate and bring it to more general notice, and am pleased to see that Mr. A. S. Fuller has noticed the same, and has endeavored to fill the want by a chapter in his new book on Small Fruits, and justly says:—

"The Huckleberry is one of those fruits which have always been neglected. None of our horticultural writers have deemed it worthy of any particular description, and but very few have thought it worthy of mention.

"Why this neglect I am at a loss to understand, for the Huckleberry possesses, naturally, better qualities than the Currant and Gooseberry. The berries are more firm than the Raspberry, Blackberry or Strawberry, and are suitable for market."

"SPORTING" IN FRUITS AND FLOWERS.

BY PHILIP WOODLEY, RALEIGH, N. C.

Two articles in the *Monthly* for June, by Messrs. Crucknell, of Pa., and P. B., of New York, make inquiries as to "graft hybrids" and "sporting,"—two subjects which I have long thought to be, in principle, the same. One of them speaks of "Prof. Caspary's interesting article, published in the *Gardener's Chronicle* of last year," on the subject—and from the note you append to the contribution I infer you have seen it. Will you republish it for your readers? I, for one, would like very much to read it, as I have never perused anything pretending in any way to account for this very common occurrence of "sporting." Many instances have come under my observation, and I have endeavored to account for it in a way which, to me, is reasonable and satisfactory.

Amongst the various kinds of plants which beautify and adorn our world, there are characters borne by all that have a resemblance to each other. For instance, all have leaves, all bear seed, and all possess the power of continuing their kind. Now, while they have these general properties in common, there are differences, even in those species which are yet closer allied, of a very striking and important nature, which serve, at the same time, to distinguish them into those classes which are governed by fixed and lawful rules, and which have met with favor wherever the study of Botany has been encouraged.

No one, I suppose, would now think of contending that these common characters would indicate a *common* origin, any more than peculiar conformations in varieties would a different one. That all our species sprung from a different origin—the first parents of the several kinds possessing those great and striking differences which we find distinguishing their descendants of to-day—is a well established fact, and needs no argument to establish it. The apple and the peach cannot boast of a common parentage. The Newtown Green Pippin and the Rhode Island Greening are, nevertheless, apples, though differing much in many respects.

Now, right here, arises the question, why should the Pippin seed not produce the Greening tree? For the same reason that it cannot produce the Seckel pear or the Tillotson peach. "And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: *and it was so.*" He said. He made those laws which we see ruling to-day. "And in the sweat of thy face," whereby bread is obtained, do we find the cause that has given to man so many fine varieties from a common parent. There we must confine our inquiries within natural bounds. Have those species which are closely allied the in-power of producing yet new varieties, by hybridization or otherwise? Have varieties of a common species the innate power of producing, at times, a common sort, or which bear a close resemblance to the common parent or to each other. The first we leave for future experiments to establish: the latter we have to deal with.

Now, we lay it down down as a rule that varieties have not the power of continuing themselves through their seed. The seedlings of fine fruits having the tendency to relapse into the original state, is ample evidence enough to sustain this. But they *have* the power contained in their buds. See the difference! The buds produce, to a certainty, the true variety of its parent; while the seed of that very fruit has the property of producing something totally different!

Here is a *principle*, an inherent principle, developed in the one case and latent in the other. Take an example:—A graft from the Seckel pear invariably produces its well-known buttery and melting fruit; an "accidental" seed produces the far-famed O t! Why so? Here is an effect produced; where lies the cause?

Nay, we see two extraordinary phenomena in this case; the *bud* propagating its kind, yet differing in its product from its own seed: and an "accidental" seed, not following the usual course, but producing a variety almost equal to, and closely resembling, its parent. We can only say that an unusual cause has operated upon this seed and produced the effect we see.

Can we understand what that cause is that has so far rendered latent this *inherent principle* of this seed as to cause it to produce this superior seedling? (1.)

Let us see. We take two varieties of the Apple, for instance, and endeavor to produce a new variety partaking of the nature of both the varieties operated with, by hybridizing them. The result is a new variety:—the same effect produced as we before saw in the "accidental" seedling of the Seckel. We draw our inference, and our conclusion is just. (2)

Again, the mere fact of a new variety being produced, is sufficient to show that there is something contained alike in the bud and seed which is susceptible of being influenced. We say alike in the bud *and* seed, because it *has* been influenced in one and can be, by the same process in the seedling,

produced by the other. Now, mark right here, a new feature: the transmission, through the germ, of this something—this inherent principle, as the term is.

Now, we lay down another rule, and we deduce it from the fact that where varieties are hybridized, the new variety produced partakes of the qualities of both parents to a certain extent; that the effect produced by hybridization is dependant on the *habitual* condition of the two kinds operated with. Let us take a step farther, and presume that it is also dependant upon the *particular* condition at the time of hybridization. For, if such a strong *mental* impression can be produced upon the mind of a female *animal* by a particular male (of which we have indubitable proof) as to cause the offspring of a different parentage to bear a close resemblance to that particular male, can we not justly infer that, in the vegetable kingdom, there is, at times, such a mysterious influence exerted, by hybridization, upon the peculiar organization of a plant as to produce in its subsequent productions a type different, in many respects, from its usual fruit? And can we not reasonably infer that the juices of the plant become "tainted" with this particular condition, and, under favorable influences, develop it. So we come to the reason assigned by your correspondent for these changes: "That the varieties of any species contain a principle which is at once common and inherited from a common parent, unchanged by the many generations, it may be, through which they have descended, but subject to certain influences which have been exerted upon them until fully developed under favorable circumstances." In what other way can we account for them? (3)

In proof of this, it would be extremely interesting to trace the genealogy of our fruits had we only the data necessary—which is now, no doubt, impossible for us to procure. Take the before-mentioned Seckel pear, for instance. It has the well-known character of rarely succeeding on the Quince. Now this is only a variety. Why has it this character? Were its two parents somewhat loth to unite with this stock? Was this the characteristic of some one of its ancestors, rendered latent through many generations by some strange influence and now developed under some unappreciable but favorable circumstance? Or, was this a characteristic of the pear in its original state? In my father's garden there is one which has succeeded well as a dwarf, and borne fruit for several years. Now, may not the tree from which this bud was taken have become *tainted* to such an extent as to render this union easy? And will not a bud from this tree unite still more readily with this kind of stock. (4)

I have a bud of the same kind growing on a Pippin apple, and the fruit, in appearance only, is Seckel; in taste, texture, &c., it is something else. Here is an influence exerted on the *bud*—the principles contained in the bud—somewhat different from that of hybridization; at least it is done, apparently, in a different manner than when a seedling is produced.

Take the Duchesse d'Angouleme, Glout Morceau and Louise Bonne de Jersey pears. Why is it that the fruit of a dwarf and a standard of either of these kinds are so totally different? Here is, evidently, a "graft-blending." The juices of two varieties of the pear form in producing, in the one case, a very poor substitute for a fruit, while in the other, that of the quince and pear combined form varieties of the first merit.

Take one from each kind of stock and place them before any inexperienced cultivator of fruits, and he would pronounce them different varieties. P. B. rather doubts that there is such a thing as a 'graft-hybrid.' The pears above named, when worked on quince stocks, certainly "produce an intermediate character," which can reasonably be designated as a graft-hybrid. They can be perpetuated the same as other varieties, and will degenerate when not rightfully propagated.

A neighbor of mine has an apple tree, the 'fork' of which divides the tree into two equal halves. The fruit of the respective sides ripens alternate years, and are easily distinguishable. A year or two since I had an *unanimity* among my collection of Dahlias, which were famous for this sporting quality. In the majority of cases there would be a small limb on the north side (if I recollect aright) that would invariably produce flowers of a dull brick red, while the rest of the bush was of the blended colors described in the catalogues. These, I think, are instances where the juices of a plant may become impregnated, and by some unostensible agency declare it by their fruits.

It is well known to breeders of animals that part of a progeny will often bear a resemblance to a previous male parent. I have a brood of puppies, part of which are pointers, like the immediate male parent, the others are of another breed, and the same as I raised at two previous broods back, without, I know, any subsequent intercourse.

Now, why can not an apple or pear produce fruit in the very same manner? Is it more unreasonable in the one case than in the other? Cases of both kinds can be cited almost indefinitely, and, I think, can alike be accounted for.

Though I have been confined to the length of a magazine article, I hope you will understand the outlines given. If your readers have any better way of solving the difficulty, let us have it.

[There are several sentences in our correspondent's paper we do not understand. At (1) for instance, we suppose he intends to inquire why the plant did not produce the Ott pear from the buds of the Seckel, why did this Ott principle lie latent until it should be developed through the seeds? And the inference at (2) we suppose to be that the Ott pear is not an "accidental" variation, but a hybrid like the two apples.

The meaning of the whole paragraph (3) we take to be that other influences besides mere fertilization may have an influence on the form and character of the change principle in plants. At (4) antipathy and affection for the quince must have been blended in the Seckel at some time by hybridization—these two affections run along together, but in some individuals, affection may get stronger than antipathy. As P. B. is in Europe and may not be back for some time, we hope that our correspondents will continue their observations without expecting any further word from him for some time.

It is however worth bearing in mind that if all our cultivated varieties of the pear, originated from *one* Pear, and all Dahlias from *one* Dahlia, there must have been a time when there was nothing to hybridize with, and that therefore some varieties of both Pear and Dahlia must have arisen independently of hybridization; and these must be what in horticultural technical language are called sports or developments. These sports may at times be the blendings of cels or principles through other agencies than seed fertilization. The Nectarine for example, which originally was a sported branch from a Peach tree, may have been from a tree grafted on a plum, or through a tree having in time past, as our correspondent instances in the dog case, been grafted on the plum; for a nectarine is simply a peach which looks and tastes more like a plum than a common peach; but the Dahlia which has neither been raised to its present state by hybridization with any other immediate species, nor been grafted on any other species, could scarcely have its 'sports' accounted for by any taint of original sin running through its veins. The whole subject is a very curious one.]

MR. HENDERSON'S HOUSES AGAIN!

BY MR. R. BUIST, ROSEDALE NURSERIES, PHILA.

When I wrote the article in the May number, in regard to Mr. Henderson's sashes with caps, and his erections, I did it with fairness and candor, and it appears that I have given offence. I had not the most distant intention of it. Mr. H. certainly does not consider that his expressions and ideas are final. If he had given your readers the actual facts, in your March number, I would not have noticed the article. The July number gives us a few more assertions from him that cannot possibly be admitted. I beg to correct those once more and with this subject I am done.

Ridge and Furrow was not detailed or alluded to by me. I said that sashes with caps (which was Mr. H.'s new item) was a stale idea. Ridge and furrow houses were in use before the late Sir James Paxton adopted them, and in use in this country with Mr. Winans, of Baltimore, about 10 or 15 years ago. Low & Co.'s alterations began in 1855, not to the ridge and furrow system. The houses were placed parallel to each other to apply the Weeks' system of heating.

I did not say that ridge and furrow was adopted at Edmonston. I said that the sash with caps *were in use* there. Now, for Mr. H.'s wheelbarrow load in his "'prentice days," if Mr. H. ever visited that place at the time he says, or before it, he would have seen within the walls on his left, a forcing grapery, a large semi-circle greenhouse, a late grapery, and a Peach house. In the forcing grounds on the right, one forcing Fruit house (would now be called an orchard house), one low house for forcing vegetables, one range of Fruiting Pine Apple pits, one range of succession Pine pits, and a range of Melon pits. Such is that wheelbarrow load.

I *did not* say that Mr. H. adopted the ridge and furrow from Mr. Bisset. Mr. H.'s pits are nearly eleven feet wide, including the two feet walk. I said nine feet; this correction, on Mr. H.'s part, is the only fact in his article, as I understand it.

Mr. H. says that I said these houses were everywhere in use: I said *the pits* were simple and everywhere in use. I have used erections of the very dimensions, except six inches wider in the pathway, these twenty years.

I did say that, in Europe, the past ten years, houses erected for plant purposes were put close together, not ridge and furrow as Mr. H. supposes, but for the purpose of applying the "Weeks' one-boiler system" of heating. Mr. H.'s ridge and furrow system on his premises is entirely ignored by the erection of a partition between the pits, as far as I could see.

Now for the milk of the Cocoanut. Mr. H.'s great cutting of Bouvardia and sash, which he entirely overlooks in his last, "his new pits have each an additional pair of hot-water pipes," and if I mistake not, the connections are all inside. *This gives extra heat—hence the extra quantity of Bouvardia flowers.* Why did not Mr. H. give your readers that information? He says they are identical with his former erections.

Had he been candid on the subject, his feelings would not have been wounded. Mr. H.'s imperious arguments have no effect on me. I have informed your readers where Ridge and Furrow Houses can be seen in Baltimore—let him inform them where "half a dozen establishments, remodeled after this (his) plan, rival my primitive structure," including the stock and its keeping. If I were to rebuild, I certainly would not think of such a trifling toy as he represents. Any person who visits Bergen and Rosedale can readily distinguish who has cobbled to the greatest purpose. "Facts speak louder than words."

The Gardener's Monthly.

PHILADELPHIA, AUGUST, 1867.

☞ All Communications for the Editor should be addressed, "THOMAS MEEHAN, Germantown, Philadelphia," and Business Letters directed to "W. G. P. BRINCKLOE, Box Philadelphia."

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UNFRUITFUL FRUIT BLOSSOMS.

In our last number, page 202, we gave an article by Dr. J. S. Houghton, which opens up an entirely new question to horticulturists in a way which promises a s lution of great practical value, especially to the Pear grower.

When, three years ago, Mr. Schmidt, of the Palisades, New York, called the attention of the readers of the *Monthly* to the fact that so many pears produced flowers that bore no fruit, and inquired the cause, no one could tell. Every one had noticed the fact, but no one had ever been so much impressed by the circumstance as to enquire the cause. It was an entirely new question. Dr. Houghton has ever since been most persevering in the endeavor to account for this phenomenon; as, being himself one of the largest cultivators of the Pear, it was a matter of much more than scientific interest to know why he had so few pears for so much floral promise, and this report of Prof. Wood, given by Dr. H., is the result.

To us the remarks of Prof. Wood have a personal interest, from the fact that the writer made one of the scientific party, referred to in the article as having examined the blossoms in the grounds; and, previously to Professor Wood's microscopical examination, and without any communication whatever with one another, both parties—the one from scientific, the other from a practical stand-point,—arrived at the *same conclusion*, and expressed it in *nearly the same words.*

Dr. Wood has shown how he concluded the Pear was *deficient in vitality* to mature the flowers. The practical conclusion by the writer was reached in this way:—

When a Pear with blossom buds is transplanted, the petals of the opening flowers have a thin, transparent texture, very different from the full cupped form and thick substance of a healthy flower. More or less of this was apparent in these blossoms. Again, if we check the vitality of a tree in any way the result is invariably an increase of the flowering propensity,—and it has become an axiom with the horticulturist, that Nature endeavors to reproduce its kind the more strongly in proportion to the danger of its dying altogether.

The very fact that these trees had many more flowers than they ought to have for their size, indicated a low *state of vitality.* We gave this as our opinion, and the course of cultivation pursued in the orchard was exactly calculated to bring this about.

The proprietor is a strong advocate of *clean surface culture*, and he keeps the hoe harrow continually going through the summer season. The roots and all the best feeding ones, are thus continually *pruned.* Besides this, the trees have been regularly summer pruned according to the most approved rules laid down by the best Pear authors. The result of this top and bottom pruning is, and must naturally be, the *weakened vitality which we saw.*

From the first number of this journal to the present time we have combatted this pernicious system of continually stirring the soil about fruit trees; but so strongly was the opposite practice rooted in the minds of cultivators, that we met with ridicule on all sides. The public were told by our good friends of the *Country Gentleman*, that we advocated "neglected culture;" and the awful end of "neglected trees" was held up as a rod of terror to those who inclined to lend a willing ear to our suggestions.

Our experience at that time had been confined to *standard* trees, but that experience had been very full and extensive. We feared to include dwarf trees, and so excepted them; but we have since satisfied ourselves that even dwarfs are no exceptions, and we think the experience of the past seven years has taught the Pear cultivator that our plan of *cultivating Pears in grass*—not *neglecting Pears in grass*—is the only one that we can adopt in this climate with *permanent* success.

There is one note in Prof. Wood's paper which is particularly interesting, namely: that a flower may have large and full anthers and yet be deficient in pollen. Our intelligent readers are aware of the views of mental development advocated by Dr. Draper, of New York, that ideas, like physical phenomena, *grow*, and thus the same discoveries may appear in many parts of the world at the same time without any knowledge, by the inventors, one of the other.

In accordance with this is the discovery by Prof. Wood of the worthlessness of some apparently perfect anthers. We find, by a recent French work, the discovery has been made, by Mr. Planchon, of

Montpelier, in the anthers of the Grape. In Prof. Planchon's case, he thinks the anthers with defective pollen are even larger and, apparently, better developed than in the normal condition of the grape blossom. The coincidence of two eminent students, so far apart,—the one examining the Pear the other the Grape,—and both making the same discovery in the stamens is peculiar. The article to which we refer, (*Sur les fleurs anomales de la Vigne cultive,*) may be found in the *Annales des Sciences Naturelles*, for 1866, p. 230.

But to the main point. The practical result to be derived from these scientific investigations is, that a tree may be *apparently* healthy; and yet be *deficient in vitality* to perfect all its parts perfectly,—and that, therefore, our modes of treatment should be examined philosophically to their true results, or we may deceive ourselves that our trees "look well," when they are any thing else; and lest we find when too late for our pockets and our hopes, that we gather only thistles from our grapes, and thorns from figs,—reversing the hopes of all good husbandmen from the most ancient times until to-day.

NATIONAL POMOLOGICAL SOCIETY'S MEETING AT ST. LOUIS.

Our readers must not forget that this commences September 11th. "Cholera and short crops" appear, so far, to be no excuse this year. We hear of many proposing to go from the east, and we judge from present signs that no session in the past, and probably no one in the future, will prove more interesting than this promises.

GRAPE VINE MILDEW.

One of the most remarkable discoveries of modern science is that plants will take on themselves distinct forms, even to *reproducing the same forms from seed*, and yet under other circumstances have very different characters, also reproducing themselves. Not only *slight variation*, but plants so widely different as to be referred to different *genera* have been proved to have originated from a common origin. In animals the same facts have been observed. Professor Cope has recorded something of this kind in the Journal of the Academy of Natural Sciences, and European naturalists have made the same discoveries.

In the Cryptogamic plants, so well studied by Mr. Berkeley, this has been particularly elucidated. We give below a chapter from Figieur's Vegetable World which, besides giving some account of this wonderful polymorphism, will interest every one interested in Grape vine mildew:—

The Vine Fungus, which is the *Oidium Tuckeri* of Berkeley, is supposed also to be a state of Erysiphes—a genera of small fungi which the world has a great interest in being acquainted with. The elegant structure and varied form of some of these fungi had fixed the attention of mycologists upon them, long before the unforeseen result of M. Tulasne's investigations became known. These microscopic plants possess, according to M. Tulasne, no less than three kinds of reproductive apparatus, which make their appearance successively, and the fungus destructive to the vine is only another species of Erysiphes, which forms the two first evolutions only of the reproductive organs.

The organs of vegetation in the Erysiphes consist of a *mycelium* formed of fine thread-like filaments, furnished with spores the form and functions of which remind us in many respects of the suckers of the Dodder-plant, which leads to the inference that in these fungi we see parasites which live upon the green or living parts of vegetables particularly upon the leaves. Certain filaments of the mycelium bear straight branches more or less numerous, which swell at the extremities into ellipsoidal utricles, and constitute small organs, often in the form of a chaplet of beads, formed of reproductive cells, analogous to the fugitive buds of cotyledonous plants. To this first reproductive system M. Tulasne give the name of *Conidies* (fig. 1).



Fig. 1.

Another class of organs consists of spherical or ovoid vesicles, generally pedicellate, and filled with

innumerable small oval or oblong corpuscles. This second system, represented in fig. 2, he calls Pycnides.



Fig. 2.

Such are the two sorts of reproductive organs which constitute the *Oidium Tuckeri* of Berkeley; which is, however, only one of the *Erysiphes*, the last and perfect form of which has not yet developed itself.

This, the latest and most important form, consists in globular conceptacles, sessile, at first colorless, then yellowish brown, and finally black and more or less spotted, which bear, like the two first sets of organs, certain filaments of the mycelium. They are all accompanied at maturity with a variable number of filiform appendages, whose form, dimensions, and position vary with the spores under consideration (fig. 3). They are simple or branch-

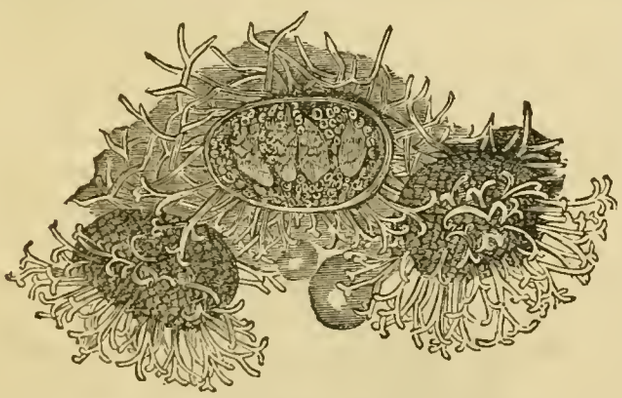


Fig. 3.

ing, and frequently terminate in arms divided into pairs. In the bosom of the conceptacles are found sacs or *theca*, variable also in number, generally ovoid, attached by a short claw to the base of the conceptacle. The number of spores, which are constant to each species, vary from two to eight. The conceptacles open irregularly in order to permit the *theca* or spores to issue.

THE PENNSYLVANIA HORTICULTURAL SOCIETY

Will, this year, hold their annual exhibition on September 24th, 25th and 26th, in their new hall. The time has been fixed late, so that Western horticulturists, when they get done with St. Louis, may have time to escort their Eastern friends back, and have something attractive for their reward. It is not necessary to be a member of the Society, or a resident of Pennsylvania in order to compete before this Society. It is in a certain sense a *national* Society, and it is hoped horticulturists every where will exhibit their treasures in response to the Society's liberality. Schedules of premiums may be had of the Recording Secretary, Mr. A. W. Harrison, Commerce Street, Philadelphia,—or of the Chairman of the Committee on Exhibitions, Thos. Meehan, Germantown, Pa.; or of any member of the Committees.

FALL PLANTING OF ASPARAGUS.

Among the many valuable ideas for which we have vanity enough to think the horticulturist is indebted to the *Gardener's Monthly*, transplanting trees just before, instead of after, the leaves fall, stands prominent. This is but "Fall planting." November setting out is really Winter planting.

Every year as we note observations and make experiments, we can see that this early Fall practice will yet be applied to many valuable purpposes we now have little idea of. Within the two past years we have watched experiments made by several gentlemen on planting Asparagus in August, and the result is a remarkable success.

The ground is prepared as for the crop at any other season, and after cutting off the green tops of the young seedlings the roots are set precisely as in Spring planting. They push new roots at once, and make eyes so strong that even from one year old seedlings, some Asparagus—but not, of course, very strong—has been cut the following Spring,—and where two year old roots have been used, a full crop has been cut in the same time,—a result no one expects from Spring planting.

In this region the plan has taken strong hold of gardeners, and Asparagus planting is likely to take rank at once with the Strawberry as a regular August operation.

It will, of course, be best in such cases to cover the beds, after they have once become frozen, with some kind of litter, not to keep out frost, but to prevent thawing and freezing until the natural Spring season comes; or the plants may be thrown out.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Testimonial to the Gardener's Monthly.—The following correspondence explains itself:—

"Penna. Horticultural Society,
Philadelphia, June 25th, 1867.

Mr. Thomas Meehan,

"Dear Sir:—A number of your personal and horticultural friends, desiring to testify their appreciation of your life long service in the cause of horticulture, and especially of the signal aid which you have rendered to this Society through the columns of the *Gardener's Monthly*, so generously proffered to its service, have united in the purchase from the Ladies' Bazaar, of the accompanying portrait of Washington, by Rembrandt Peale, which they desire you to accept in token of their high regard.

"Allow me to add the assurance of my own warm friendship.

"Yours, sincerely,
"A. W. Harrison, *Sec'y.*"

Germantown, Pa., July 1st, 1867.

Mr. A. W. Harrison.

Dear Sir:—The portrait of General Washington, presented, through you, by a number of my horticultural friends, I accept with grateful feelings for this valuable token of their kind regard. At the same time I cannot but feel that much of the merit which my services may seem to claim from the lovers of horticulture is due to the Horticultural Society, so many of the members of which have united to do me honor in this pleasant way.

I came into your midst twenty years ago a stranger and in company only with a zealous love of horticulture,—but I found at once in your Society kindred spirits, associating with whom horticultural taste once begotten could never die.

To return to others a portion of the pleasures I have so liberally received would alone be sufficient to induce my best exertions,—and yet I feel renewed encouragement by this generous manifestation of your regard.

The picture and kind letter which accompanied it will ever be associated with pleasant memories, and I beg you to return the donors my best thanks.

Very truly yours,
Thomas Meehan.

Planting Young Trees in Fall.—*J. H., Litiz, Pa.*, writes: "That he has so much difficulty in getting young stocks in Spring —or in getting some desired things in Fall, whether we would advise him to get things and plant in the Fall."

We have never seen Fall planting of small things very successful. The best way is to bury up young stocks entirely with earth, and take them up and set out as early in Spring as one's season will permit. We do not know how far to recommend this practice with evergreens; we have only seen it done with arborvitæs, and these were a complete success.

Henderson's Clustered Houses.—We extract the following from a private letter of Mr. Saunders, of the Department of Agriculture, at Washington. It was not written with a view to publication, but as it contains facts that ought to go on record, Mr. S. will, we are sure, pardon us for the liberty we take in using the paragraph. "In looking over the *Monthly* to day I noticed continued discussions on the clustered houses of P. Henderson. It has always been my impression that Marnock of the Regents Park Garden, was the first to put up and recommend this mode of building. In the *Philadelphia Florist* away as far back as 1852, I suggested graperies on that mode; in 1860 a plan was given in the *Farmer and Gardener*, of Spangler. I repeated same plan in Ag. Report of 1861."

Orchard Houses.—*N. D. G., New York.*—"My employer intends building an Orchard House "span roof:" would you make one entire bed in the house to plant the trees in, or partition the bed off? If so, what space would you allow for the roots of each tree? Is it necessary to use netting over the ventilators to exclude insects and if so, what sort is best?

I like Mr. Thompson's letter in July *Monthly*, and your own very sensible remarks on the same subject. What a man can do is of no practical use to the readers of the *Monthly* unless they are also told *how* they may accomplish the same thing."

[We would not advise them to be put into beds at all,—divided or undivided. So far as we know all attempts on this plan in the United States have failed.

In pots or tubs fruit trees are very successful, and we believe on no other plan do they do well.

Those whom we know to be very successful with their orchard houses take no precautions against the Curculio coming by the ventilators. If, however, they are found likely to be troublesome, gauze

may be put up. If soaked awhile in Tan water the screens will last several years.]

THE HANDSOMEST SHADE TREE.—Which is? asks *J. A. C*, of *Shippensburg, Pa.*—We were about to say the Norway Maple when we remembered the memorable contest between Juno, Pallas and Venus, as to which was most beautiful. Paris got himself to a sad scrape with the two former, when he ecided for the latter; and we have no wish to risk he same fate. There are so many really handsome shade trees, that we will leave it to some of our Lady correspondents to decide which is the best.

DEPTH OF GRASS ROOTS IN CLOSELY MOWED LAWNS.—A valued friend suggests to us that our advice on lawn management is founded on incorrect principles. He grants that in trees and shrubs, cutting back the green leaves and shoots checks vitality, and that the roots of these things so pruned do not extend any farther than the branches are permitted to grow. The grass, however, he thinks an exception. It, he believes, is strengthened and not weakened by repeated cutting. Farmers, he observes, turn cattle into their wheat fields in fall frequently so that by eating off the tops, the wheat plant may be strengthened and made better able to stand the severity of the winter.

We know of no more successful lawn maker than the gentleman referred to; yet we are quite sure that any who will carefully experiment with a few grass plants in a border by themselves, will find our statement *exactly true*, that the grass roots go down only in proportion as the plant is left uncut. There will be more surface fibres to the continually cut plant —and this is the reason for grazing wheat, to make surface fibres that will help to keep the plant from being thrown out by *frost*,—but the uncut grass, instead of making numerous *weak fibres*, make deep strong roots. We are, however, glad to hear the objection. Though we seldom adopt conclusions until we have given facts a thorough investigation, we do not suppose everything we say will prove infallible, and we want to learn as we go as well as the reader.

INSECT ON THE SILVER MAPLE.—*S. C., Latrobe, Penna.*, sends samples of insects covering Silver Maples. They are like the ordinary Scale insect, but have a cottony appearance.

It is the grape vine Scale, (Lecanium Vitis). The best way to destroy it is to prune in the trees in winter to the principal branches, and then wash the remaining branches with coal oil and water.

LILES.—*A Massachusetts 'Subscriber'* inquires the best time and best soil for Lilies, and who has the best collection for sale?

[Lilies should be planted in October and November, about four inches under the surface in a rich sandy loam, and in a place where they will never be liable to become dry, and yet not so wet that water will stand long on the place where they grow. As for the best collection we do not know. As near her own home, our correspondent might try Hovey, or the other large Boston Florists; or Bliss, of Springfield. If they have not the kinds she wishes, no doubt they will be able to procure them for her.]

PATENT RIGHTS.—A case was recently tried before Judge Cadwallader in the U. S. Court, in Phila., for an infringement of a patent right. The defence was that the Patentee was not the inventor of the idea patented. The Judge decided in favor of the defendant, saying lack of novelty was fatal to a patent. We shall therefore have to withdraw our suggestion that some of our grape geniuses get out a patent for the exclusive right to put soap suds on celery.

AN EVERGREEN HEDGE UNINJURED BY CATTLE. —*W. S. V. D. Leavenworth, Kansas*, asks: "Have you yet heard from any of your correspondents that the Norway Spruce will be uninjured by cattle?"

[We have not heard of any and shall be glad to hear of any actual experiment having been made.]

PLANTS IN ROOMS.—*S. M. B., Brooklyn N. Y.* —The trouble with your plants in winter, comes from the gas lights, we have no doubt. If you could have a glass door or window, forming a sort of enclosed case for your plants they would no doubt do very well.

WEEVIL IN PEAS.—A correspondent in Eastern Tennesse, says: "I wish to go into seed raising, but I am troubled with the weevil in the Peas and Beans. I have been told lately that Landreth scalds his seeds; you will do me a great favor if you can inform me if he does, and at what temperature he uses the water and how long he leaves them in it."

[We do not know of any thing that will destroy the larva of the Pea weevil. If any one has had any experience with scalding, we should be glad to know.]

Pear for Name, from *J. H., Bunker Hill, Ill.*—Supposed to be a seedling, reached us completely decayed. In its present state we cannot see much difference between it and Dearborn's seedling, but which in this district is not yet ripe; and besides our correspondent is no doubt well acquainted with this variety.

Name of Plant.—*Subscriber, Catonsville, Md.*—Hypericum Prolificum. "B." Upper Darby Pa. 1. Goodyera argentea. 2. Cypripedium acaule.

Name of Raspberry.—*R.*—Not Hornet, but Northumberland Fillbasket, which however approaches Hornet.

American Journal of Horticulture.—In our last we inserted a paragraph and credited it to the *Boston Journal of Horticulture*, it should have been *American* Journal of Horticulture. We added "Boston" as the place of its publication, and not to convey any idea that the Magazine was only of local interest.

Notes on Gardens and nurseries about New York, Philadelphia, and elsewhere, we have in hand for a future number.

The Ramie.—Two gentlemen connected with the Agricultural department at Washington, call our attention to the paragraph on the "Ramie" in our last, and think we have done injustice to the department. From the paragraph we saw, we supposed the efforts of Mr. Bacon and others to make known the "Ramie" had been unjustly overlooked; we find, however, that in the April number of the journal, a very full statement has appeared, and as we are very glad to do the honorable thing when we make a mistake, we give below the article entire. The matter is one of great national importance in itself, besides our desire to relieve the department from unmerited censure:

"Letters have been received in the department relative to a fibrous plant called "Ramie," or the *Boehmeria tenacissima*, which was introduced in March from Mexico into New Orleans, where it is said to be growing finely. It was introduced into Santocomapan, near Vera Cruz, twelve years ago, as it is claimed, by Benito Roezel, an Austro-Belgian botanist and propagated extensively.

A paper has also been received upon the subject, which was read by A. B. Bacon before the New Orleans Academy of Sciences. Mr. Bacon, in a letter dated April 30, says of his experiment with a specimen: "I put the root in the ground in my garden March 23. The plant is now about four inches high, and seems to grow vigorously.

Another gentleman, in a second letter from New Orleans, says: "It is claimed here that it is impossible to propagate it from seed, but that it can be propagated from cuttings. From the other sources I am led to the belief that this latter idea, at least, is erroneous."

It seems to be creating a local sensation, and to be generally regarded in that quarter as a new discovery fraught with good to the south. It may possibly prove to be Agriculturally remunerative. There is no doubt of its great excellence and value as a fibre. But it is to be hoped that those interested in propagating it will descend to no mystification of the public as to its character and identity.

It produces a fibre well known commercially for an indefinite period wrought into fabrics of great beauty and strength in all the principle countries of the east, and for many years manufactured in Great Britain. It belongs to the nettle family, (*Urticacice*) and this species is now known as *Boehmeria*, and was christened by Dr. Roxburgh, an eminent botanist, *B. tenacissima*, from its toughness. Other botanists gave it the name *B. nivea*. Sir William Hooker declared positively that the names were synonymous; that the plants so named were identical. Dr. Shaffer, librarian of the Patent Office, who wrote in the the Agricultural Report of 1855 concerning it, still regards the *B. Nivea* and *B. tenacissima*, as identical. If it were conceded that they were sub-varieties of the same species, it would not be a practical difference: for the fibres is the same, its uses and price the same, and the fabrics manufactured from it are known as China-grass textures, of which some fine samples may be seen in the museum of the Department of Agriculture, manufactured in England. In China the common name of this plant is "chou-ma;" in Japan, "Tsjo;" in Sumatra, "caloee;" in Malacca, "ramee or ramie;" in East Celebes, "gambe;" in Assam, "rheea;" in Bonona, "inan;" and in other places it is known by different names. There is a slight difference, as to coloring of leaves and downiness of surface, in different climates and localities; but the balance of authority among botanist seems to declare these differences too small to warrant even a separation into varieties.

In the Report of Agriculture for 1865 will be found an essay on this fibre, with a brief history of the introduction of the plant into the botanic garden of the United States in this city, in 1855 by the superintendent, W. R. Smith, who obtained it from

Jamaica, through Mr. Wilson, of the Government gardens of that island, and propagated, under glass about fifty plants *from the seed.* Mr. Saunders, at the experimental garden of this department, has also grown them, and now has them in his garden."

Mr. Bacon, in his recent paper on the ramie, or rami, says, relative to its propagation by Mr. Roezl:

"The Ramie, as Mr. Roezl informs us, is planted like sugar-cane, by laying the stalks or canes about two or three inches under the prepared earth in rows. The first crop from this planting will reach only two or three feet in height, when it will be found ripe for the knife, and should be cut close to ground. These stalks will not produce the thread in perfection. From the stubble thus cut, new plants will rise and attain a greater height, and be cut in a like manner again and again, until, in Santocomapam, Mr. Roezl takes off five crops in each season; the plant when well rooted reaching the height of twenty feet, each crop being equal to one of hemp as cultivated in Europe. It is his opinion that in this country Florida, Louisiana, and the middle and southern portions of Georgia, Alabama, Mississippi, and Texas are alone suited in climate to its profitable growth; and that here from three to four crops of it may be made in each year.

The plant, when once rooted in the soil, is exceedingly hardy, and in this climate a perennial one. It will be greatly benefited by cultivation; but neglect will not endanger it. It has no insect enemies dangerous to its growth or existence. If, when ripe for the knife, the cutting of it is delayed through any fortuitous circumstance, it is not injured by standing. The machinery invented by Mr. Roezl for cleansing it may be provided at a very moderate cost, and is simple and comparatively light of carriage.

It remains only to add, as to its practical value, that in 1865, Mr. Roezl sent fifty tierces, containing over five thousand Spanish pounds, of the textile to England, and that it was there sold at double the price of the best quality of cotton. Fabrics woven from it will be exhibited in the approaching world's exhibition of Paris, woven in the looms of Lyons, Belgium, and England. Its great productiveness will, doubtless, in the end reduce the cash value of it in the manufacturing markets; but with it that of cotton, linen, and other rivals."

Grapes not Coloring—"*Reader,*" *Baltimore, Md.*—"Can you give me a plan to make my grapes color. They taste sweet, but are not black?"

[The root fibers have got killed in some way, See if the border is wet, or the roots too deep.]

Books, Catalogues, &c.

American Pomology, Part 1st, Apples. By Dr. J. A. Warder. New York: O. Judd & Co.

In the introduction the author disclaims any attempt to offer anything new in matters relating to orchard practice. Practical notes, he was advised, would give additional value to his work and he drew up therefore an account of his ideas, of what should be done in fruit culture, as he had experienced it, without reference to what had or had not been given by authors before him. The originality he claims as his warrant for a new book is the description and classification of apples. In this he has succeeded wonderfully well. The labor has been immense, but it must be a consolation to him to have the congratulations of his pomological friends on so happy a termination of his task; while from the excellent typographical execution of the book, we have no doubt his publishers will be able to offer him "consolations" of a more substantial kind, for a bad book if well printed will often pay its way, and a good book should do so handsomely.

As for the classification itself we think Dr. Warder has done the best any one can do with a strictly artificial system; but the great defect of all systems so constructed is that it brings together things which are *naturally unlike,* so that when once the key character is lost for a section—and when we grant that characters vary—there is no chance for us to find our way out of the difficulty. It is just like finding out a strawberry by the old Linnæan classification. He saw it had Hermaphrodite flowers with many stamens, and placed it in his class Polyandria. In our country where it often comes Monœcious and Diœcious, a young student starting by the Linnean classification, would at once get on the wrong track and never find out that he had the strawberry Linnæus had. To obviate this a natural system has been adopted which *brings together like and like,* and thus if one or two characters are variable, it makes no difference, all the other characters retain the variety in its place.

Thus it will be with fruits,—all attempts to found a classification on any system which brings together unlike forms, will have at best but a temporary value. Until the time comes when some one shall give us a system *founded on resemblances,* as we have so repeatedly suggested, Dr. Warder's book will be the *vade mecum* of Pomologists.

And speaking of "*vade mecums,*" we would suggest that every Pomological Society should buy a

set of Dr. Warder's book and keep them on hand and *at hand* for the use of their committees. It is a pitiable sight to a true Pomologist, and a laughable sight to a mere looker-on, to observe a lot of "Committee men" disputing about the name of a fruit with nothing but the memory of a thousand varieties to guide them. "This is the King apple," says one; "not at all," replies the other, "it is the Queen." But another declares it is "the Duke;" while another is quite as certain that it is the "Duchess." It is not ignorance. The most really learned Pomologists give these funny amusements free to the spectators. We would make it a *sine qua non* with a committee man on apples that he take Warder's book along with him. If he was too learned for that, he might go his own way.

The Vegetable World. By Louis Figuier, American Edition: D. Appleton & Co., New York.

It is a trait of modern science, that its professors aim to make it *popular*. The past generation flew to the highest peaks of learning, and only displayed the treasures of its nest to those who choose to climb up the rough and rocky crags of Greek and Latin, and the rugged cliffs of Scholastic lore. Now it descends to the level of the common apprehension. It lays its eggs not only for "gentlemen," but for all classes and conditions of life.

And the great public is not slow to appreciate this condescension of science. There are thousands who have not time to study the Sciences minutely who yet wish to be accurately informed of the general principles; and when scientific men themselves undertake to prepare such works they find them well appreciated by the public. In England, "Hardwick's Science Gossip," the "Popular Science Review," and other works of this character are having a very successful run; and in our own country the labors of Professors Gray and Agassiz amongst others, have been popularly successful.

This work of M. Figuier is of this character. Although the author is not distinguished for his own scientific attainments, he is a laborious compiler from the best sources, and by the aid of an excellent artist has produced a work of very great popular value. For the vast part of his materials those familiar with the writings of Lindley, Humbolt, and other learned men, will see the author is indebted; but they are so popularly displayed, and generally so correctly, that the work may be taken as one of high scientific merit, dressed in a garb so popular that all ages and classes who may desire to have a succint knowledge of the vegetable world will find profit in its perusal,—and no library will be complete without a copy.

Messrs. Appletons' deserve great praise for their enterprise in introducing this magnificent work. The expense of preparing over 450 first-class engravings must have been heavy, but the public will we have no doubt well sustain them.

There is one thing we would suggest to the publishers, which, in another edition, will very much improve the book. We suppose this is an exact reprint of the English translation; and as it has been no doubt proof-read from that, "copy" has been followed, and the consequence, there is scarcely a page in which there are not typographical errors and mistranslations which greatly mar the value of the book as a popular work. An American scientific proof-reader who will follow accuracy independently of copy, employed on the next edition will remedy this. It reads very funny to an American that his Solidago is called in his country the "Golden *Birch*," instead of *Golden Rod*. The "Birch" being a noted element in the instruction of English youth, it was perhaps natural for an English translator so to translate *verge d'or*, but this an American proof-reader would correct. How the translator made the Dewberry (*Rubus cæsius*) have *blue* flowers (page 456) we cannot so well explain. At 321 we are told of *Liliaceæ* "they are herbaceous plants, shrubs, or trees with bulbs, tubers, Rhizomas, or fibrous roots. *They are all water plants, with erect leafless stems, etc.* The sentence we have italicized must be a mistranslation or a transposition, as a tree "with erect leafless stems" cannot apply here. It seems to us that perhaps Butomaceæ and Liliacea have been confounded together some way, but this makes it no better for the general reader; while the typographical error (page 366) which gives "Caryas" (Hickories) "are deadly poison" when *Caricas* are meant, may be the means of circulating a grievous error about our timber trees.

Small Fruit Culturist. By A. S. Fuller, New York: Orange Judd & Co.

A well printed and illustrated octavo of 275 pages, giving the results of Mr. Fuller's experience and observations on the culture of small fruits.

It is a common proverb that "Doctors disagree," and especially is this true of fruit Doctors, no two of whom agree as to the best way of treating anything, if we are to judge by reports of discussions at fruit meetings. But after a careful perusal of Mr. Fuller's book, we can say we think he has been fortunate in hitting on the true medium or com-

mon ground wherein most of the best practical men will agree with him; and thus has been fortunate enough to produce a work which will prove generally acceptable alike to those who believe they know, and to those who want to know the best general way to grow small fruits.

Flore des Serres.—We have received from Mr. Van Houtte a set of this magazine. It gives superb colored drawings of the most beautiful floral candidates for popularity. It is a beautiful ornament for the most tasteful drawing-room table, where flowers, whether portrayed by the hand of nature or of art, are an essential ornament. We should like to see such a work *indigenous* to the United States; as that cannot be, the next best thing is to advise our readers to send to Mr. Van Houtte and get it, or order it through any importing bookseller.

New and Rare Fruits.

Boudinot Strawberry.—Mr. C. L. Whiting, Licking Co., Ohio, writes us with regard to a strawberry originated by Dr. Boudinot of that county from seeds of the Wilson, and named for its originator. Our correspondent has "cultivated berries for 30 years, but never has seen anything begin to promise like this." Andrew Merriman, a very successful horticulturist of the same place, has a row of the Boudinot in his garden, planted for trial, side by side with the Russell, Agriculturist, Jucunda, and very near the Ellsworth and Monitor—all receiving precisely the same attention. Mr. Whiting says of these:

"The season has been favorable, and all varieties have done well, but the Boudinot showed the peculiarities noticed the first year of its bearing, viz: Large size, perfect form, great uniformity in size, early ripening, firmness of flesh, red to the centre, and probably *three* perfect berries in number to *one* on either of the other kinds named. Individual berries on the Russell and Agriculturist were larger than any of the Boudinots. But 4 and 4½ inches were not at all uncommon. Three quarts of ripe berries were picked from seven plants at one time. The shape and color are much like the Wilson, but in flavor they are sweeter."—*Country Gentleman.*

[Specimens on exhibition at the American Institute Strawberry Show, indicated berries of tolerably high flavor, but they had been brought to the exhibition under too many difficulties to receive much praise for their appearance.—Ed. *G. M.*]

New Strawberry Charles Downing.—This we believe to be a valuable variety, judging from samples we saw in New York. It was raised by Mr. Downer, of Fairview, Ky., the raiser of Downer Prolific, though the specimens we saw were grown by Mr. Carpenter. It is large,—Mr. Thompson, of Staten Island, weighed 28 which made 1 pound—and the berry is firm, of good flavor, and fine color. The committee of the American Institute (Thurber, Ellis, J. J. Thomas and Meehan), were favorably impressed with it, and would have awarded the Greeley premium of $50 to the Seedling Strawberry which should equal the Albany Seedling in good qualities, but be superior in flavor, only that of their own knowledge they could not say—the plants exhibited being only young runners of last fall—that it would be as *productive* as Albany. It *appeared* as if it might do that.

Dr. Nicaise Strawberry.—The single variety shown by Frost & Co., was the "Dr. Nicaise," a European variety, imported by them from the South of France. It promises to become noted, at least for the great size of its fruit. Mark D. Wilson of this city, also exhibited specimens of this variety, one berry measuring six and three-eighths inches in circumference, and weighing one and one-eighth ounces.—*Rural New Yorker.*

New French Pear Seringe.—Tree pyramidal, vigorous, and productive; shoots flexuose, olive-colored in the shade, purplish red next the sun; leaves ovate, acuminate, pubescent and dentate. Fruit middle-sized, oval, inclining to obovate, a little depressed at the ends; stalk long, moderately thick, a little thickened at its junctions with the fruit and spur; eye large, open, in a slight depression; skin citron or pale yellow, smooth, with some russet specks; flesh white, very melting, and sugary. Ripe in August. The Poire Seringe or Beurre Seringe was obtained by M. Nerard, nurseryman at Lyons, and it was awarded a silver medal at the Exhibition of the Horticultural Society of the Rhone. It was named in honor of Nicolas-Charles Seringe, the collaborateur of M. de Candolle, and afterwards Professor of Botany at Lyons, who was born in 1776, and died in 1859.—*Gard. Chronicle.*

Naomi Raspberry.—Several years ago we were shown samples of a new raspberry called the Naomi, grown in the vicinity of Cleveland. The parties having the stock in possession have been very modest in presenting its claims to the public, but

the fruit has proved to be so good that it is now likely to create a stir among berry raisers. We received a basket of this fruit last week, from J. A. Hall of Collamer, a few miles east of East Cleveland, in this county. The berry is of large size, long cone-shape, firm flesh, high flavor and gamy to the taste; not so wooly and insipid as this fruit is apt to be. Having a firm flesh the Naomi is a good berry for shipping. As a bearer, Mr. Hall says his canes are almost borne down by the weight of the fruit. As to the superior quality of this fruit, we can vouch without hesitation, that it is fully equal to the Philadelphia, now so popular in the eastern markets. Mr. Hall will have plants to spare in the fall.—*Ohio Farmer.*

Strawberry "Iron Duke."—We have received from Thomas H. Graydon, Esq., of St. Catharines, C. W., a colored photograph of a new seedling strawberry raised by him, which indicates it to be of very large size—7¼ inches in circumference—berries are said to weigh 1¾ ounces. It "cockscombs" like Triomphe de Gand, and has the color of that popular variety.

New Black Grape, the Muscat Champion.—It was raised by Mr. Melville, of Delmeney Park, from the Champion Hamburgh, crossed with the Canon Hall Muscat. It is a very free-setting variety, and *succeeds perfectly under the same treatment* as the Black Hamburgh. The bunches are large, well shouldered, and the berries of great size, resembling in every respect the Champion Hamburgh, but with a *most exquisite and powerful* Muscat flavor.

In the report of the Fruit Committee of the Royal Horticultural Society for September 10th, 1861, it is thus mentioned:—"The bunch in size and shape had all the appearance of one of the Mill Hill Hamburgh. It was large and well set. The berries were large, round, and oblate, shaped like small oranges, and very much 'hammered.' The flesh is firm, juicy, sweet, and richly flavored with a marked Muscat flavor." The Committee were of opinion that it was a decided cross, a very excellent Grape, and well worthy of notice.

Pear Princess of Wales.—*Florist & Pomol.*, 1867, 93. A very handsome and valuable dessert fruit, of full average size, variable in shape, obtusely obovate, or sometimes with a contracted waist, smooth, pale yellow, mottled over with thin cinnamon russet; eye open, set in a rather shallow basin, the segments erect acute; stalk short, stout, inserted in a deepish cavity; flesh smooth, melting, juicy, with a highly-flavored aroma. Ripe in November and December. Raised by the Rev. J. Huyshe, Clysthydon, Devon.

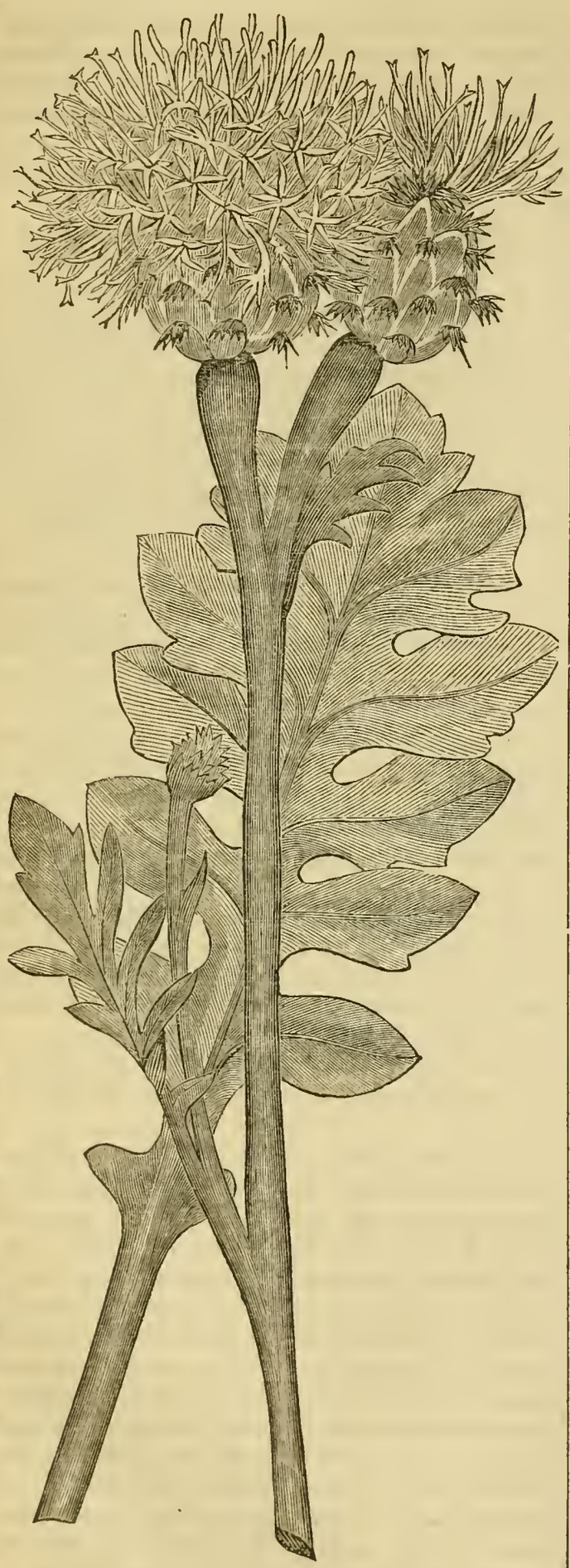
New and Rare Plants.

Desmodium penduliflorum.—The Dutch gardens introduce to us Desmodium penduliflorum, in which we have what appears to be a perfectly novel and hardy flowering plant, producing free summer growth, with graceful pendulous branches and abundant lengthy racemes of reddish purple blossoms in summer and dying back in winter to the older persistent woody parts of the stem.—*Gard. Chronicle.*

Myrsiphyllum asparagoides.—An elegant greenhouse climber, native of the Cape of Good Hope. The leaves (flattened branches) are alternate, and like those of Ruscus, inserted in the axil of a minute scale; flowers solitary, or in pairs or threes, in the axils of the leaves; segments of the perianth linear, stamens erect with small orange-red anthers. "One of the most elegant greenhouse climbers that can well be found; nothing, indeed, can exceed the feathery lightness of the plant when well grown and flowered; and whether on account of its graceful habit, its flowers in mid-winter, the uniformity of its bright green foliage, and perfume of its pearly flowers, it is one of the plants best suited for table decoration and ornamentation generally hitherto introduced."—*Bot. Magazine.*

[This plant is grown abundantly by the Boston florists for the purpose indicated. Ed. *G. M.*]

Vitis hypoglauca, F Mueller, Plants of Victoria, i. 94; Cissus hypoglauca, A. Gray, Bot. American exploring expedition, i. 272; C. australasica, F. Mueller, in Trans. Phil. Soc. Vict., i. 8, Ampelideæ.—A native of Victoria and New South Wales, growing on the banks of forest streams and rivers. A climber destitute of tendrils, having digitate and 5-foliate leaves of an oval or oblong form, light green above, and when young beautifully glaucous beneath; flowers small, yellow, in axillary cymes. This interesting plant now flowering for the first time in this country, may be seen in the New Temperate House, where, planted against the supports, it has reached the gallery, and is trained along the balustrade, freely producing its pretty, although minute flowers.—*Gard. Chronicle.*



CENTAUREA RAGUSINA.

CENTAUREA RAGUSINA.—This beautiful bedding plant has been in American nurseries for a couple of years or more, but is not yet common. At a recent meeting of the Penna. Horticultural Society one was exhibited in bloom. It has golden-yellow flowers which contrast prettily with the pure silvery foliage.

It stands our summer heat very well, making a nice contrast with Iresine, Coleus, Dracœnas and other colored leaved plants. It is a herbaceous perennial and a native of the South of Europe, and with a little protection would probably stand our winters. In some catalogues it is called Centaurea candidissima.

COSMOS BIPINNATUS.—This is a Mexican annual, allied to Coreopsis, but is of a beautiful purple color The plant grows about two feet high, commences in Pennsylvania to flower in July if the plants are advanced a little by being sown under glass in May, and it continues blooming until the fall. It will be a popular annual for the United States from its peculiar color, and from the fact that it endures the heat of our summers so well.

TAGETES SIGNATA PATULA.—Is another Mexican annual which has been found to endure the American summers well. It is one of the family to which the old French Marigold belongs, but the flowers are small, and numerously produced, of an orange color.

GOLDEN ALDER.—Among hardy trees, we look upon the Golden Alder, Alnus glutinosa aurea, as the most striking of our acquisitions, and well adapted to impart effect to plantations and pleasure grounds, the materials for which are now both extensive and of a telling character, and moreover are apparently engaging some of the attention they deserve.—*Gard. Chronicle.*

ANTENNARIA TOMENTOSA.—Is the most precious little gem of a silvery-leaved edging plant that has ever been seen. It does not grow higher than the moss on a moist trunk or stone, but is so dense and silvery that the effect on the ground is as good as that of Centaurea ragusina. It runs along the earth and spreads very closely and very much. We had it from Mr. Niven, of Hull, two or three years ago, and it has been first grown as an edging plant by the Messrs. Henderson during the present season. —*The Field.*

In the recent issues of the *Botanical Magazine* occur figures and descriptions of the following:—

TAPEINOTES CAROLINÆ.—A beautiful Gesneriaceous shrub with ornamental leaves and handsome white flowers. It will be a valuable plant for the stove and for exhibition.

ANGRŒCUM CITRATUM.—This pretty orchid is a native of Madagascar, whence it has been obtained by Messrs. Veitch. The flowers are closely set on a raceme three to five inches long; they are primrose white.

IMPATIENS LATIFOLIA.—An Indian perennial balsam, with large rosy purple flowers.

CLAVIJA FULGENS.—A handsome myrsinaceous plant from South America. The trunk is short, the leaves ten to fourteen inches long, and the flowers numerous on racemes four or five inches long; they are deep orange-red with yellow discs.

MESOSPINIDIUM SANGUINEUM.—A pretty orchid, with nodding racemes in the way of Rodriguesia secunda, but larger and handsomer. It has been long known, but has recently been obtained and cultivated by Messrs. Backhouse, of York. "It appears to be quite at home in what may conveniently be termed the Peruvian house, as meant to include the coolest and dampest section of temperate orchids, while the Mexican house would indicate a climate somewhat warmer and drier than the last, but still cool."

BARLERIA GIBSONI.—A pretty acanthaceous shrub from Central India; it is of neat habit, and produces handsome purple flowers.

PLEROMA SARMENTOSA.—A superb species, well adapted for greenhouse culture; the flowers are numerous and large; the color deep violet shading to cobalt blue.

SARCANTHUS ERINACEOUS.—An exceedingly pretty orchid, producing numerous racemes of minute flowers, which are primrose-white touched with yellow; the lip rosy pink.

SIPHOCAMPYLUS HUMBOLDTIANUS.—A elegant plant with bright green ovate leaves, and large tubular flowers of bright orange-red color.

LOASA TRICOLOR.—Another Mexican annual introduced to the United States last spring. The flowers are pretty but the habit is coarse, and it has a nasty way of stinging badly which forbids it ever being a favorite.

Foreign Intelligence.

CHRYSANTHEMUMS.—How Mr. Broome grows them:

"The following is the method adopted by me in the culture of large varieties in five-inch pots, from cuttings in June:—Last year I purchased all Mr. Salter's and Mr. Bird's new varieties. They were delivered to me in May, and I planted them out in the borders on receiving them, and allowed them to become naturalized to the smoky atmosphere for three weeks, which brought them up to the first week in June. I then took the tops off 3 inches long, and put the cuttings into 60-sized pots, one in each pot, draining the pot with a little cocoa-nut fibre, and filling up with mould composed of half light loam and half silver sand. I then plunged the pots in the front of a Cucumber-frame, of the temperature of new milk, and shaded for a fortnight, giving a little watering occasionally. By the 1st of July they were well rooted. I then repotted them into five-inch pots drained with cocoa-nut fibre, the compost being two-thirds fibrous maiden loam from Epping Forest, one-third rotten dung, and one-third decayed leaf mould, pressing the mould firmly round the sides of the pot. I then put them in a cold frame for nine days with a little air to harden them off, and afterwards removed them to a sheltered, sunny spot for three weeks attending to the watering, and every evening syringing the foliage to wash off the fallen soot, and keep off insects.

At the end of three weeks I plunged them three parts down in the front of the border, making the hole much deeper than the pot in order to obtain a free drainage. I then commenced giving weak liquid manure, composed of horse, sheep, and cow dung, all mixed together in a tub, and this I continued to follow up till they showed the color of the flower. As soon as they began to show and throw out their side shoots I picked these out. and continued to do so till they showed their flower-bud, which was in the end of August. When the bud was properly formed I took off the side shoots on each side of the bud, where the bud looked healthy and promising; but I was obliged to let several go on to the second shoot. These did not bloom quite so early, but all did very well. The average height was 18 inches, with healthy foliage to the rim of the pot, and the blooms as perfect and nearly as large as those plants in the borders with unlimited space for growth. They bloomed in the first week in November, and attracted more notice than all the other flowers on account of the short foliage.—*Gard. Weekly.*

LIKE DOES NOT PRODUCE LIKE.—By a wise ordinance it is ruled, that amongst living beings like shall never produce its exact like; that as no two circumstances in time or place are absolutely syn-

chronous, or equal, or similar, so shall no two beings be born alike; that a variety in the environing conditions in which the progeny of a living being may be placed shall be met by variety in the progeny itself. A wise ordinance it is, that ensures the succession of beings, not by multiplying absolutely identical form, but by varying these, so that the right form may fill its right place in Nature's ever varying economy.—Dr. HOOKER, in *Gardener's Chronicle.*

RICHARDIA, OR CALLA ÆTHIOPICA.—A plant much grown by amateur gardeners, is a half aquatic, and therefore delights to stand in pan of water—which, however, should be withdrawn when the plant has done flowering, and shows symptoms of shedding its foliage. In August the bulbs may be separated, and planted three in a nine-inch pot.—*Gardeners' Weekly.*

THUJA LOBBI.—This is by far the most prominent tree introduced of late years, with the exception of the Wellingtonia and, perhaps, Cupressus Lawsoniana. I am not certain that it yields to the latter in point of merit, while in rapidity of growth it is even superior to the Mammoth Tree itself. A specimen here measured, last December, 19 feet in height, and was 6 feet in diameter, having grown 15¼ feet in five years, and in two successive seasons it grew altogether 8½ feet. The position which this tree occupies is sheltered, and it has, perhaps, run up faster than it would have done if it had been more exposed; but the species is undoubtedly of rapid growth. Nothing can exceed the beauty of the foliage on the lower part of the tree—for, unlike many of its class whose branches have a vertical character, they have, in this, rather the graceful curve of the Fern, the flattened side of the foliage being upwards, while the leading stem rises up like a fishing-rod, and is quite as straight. As a tree it is much admired, and deserves to be more extensively grown. It is, also, apparently as hardy as the Yew, and will, evidetly, be a popular tree.

[It is now understood that the tree the English call Thuja Lobbii is our Libocedrus decurrens.—ED. *G. M.*]

HOW THEY GROW ENDIVE IN ENGLAND.—This is doubtless the most ornamental of our salad vegetables, and it is by no means used so much as it deserves to be. Its pleasant bitter taste—I may call it, when well blanched, bitter-sweet—is sufficient to recommend it to most palates, putting aside its crispness when well grown. It should be sown on rather warm land in the second or third week in June. Rake the surface of the bed, then sow, and cast an inch or so of mould over the seed; if the earth is dry, water after raking, previous to sowing or casting, and should the weather be very parching, shade or cover the bed with straw mats, or some such material, to keep off the scorching rays of the sun. As soon as the plants show themselves, remove the shade, but do not let the sun burn the plants; it will be better to cover them with litter during the hottest part of the day, leaving them exposed to dews at night, or to rain during the day. If the weather be dull and damp these precautions will not be necessary. Make another sowing about the end of June for late planting, and do not be short of plants, for as this salad is to serve all the winter, a good stock will be required. Some sow in May, but the plants often run to seed prematurely; if early Endive is required, however, it must be sown then. As soon as the plants are large enough—say when they have five or six leaves, they may be planted out in open ground in rows 1 foot apart, by 1 foot 6 inches, watering them well if they require it. Should they have grown long and crowded in the seed bed, cut off the tops with a long knife as if you were mowing, taking care however not to cut too low. This may seem a severe operation, but it will strengthen the plants, and is very much better than allowing them to get too long and drawn. This may be repeated if you have not opportunity to plant them out. They should be planted in drills an inch or so deep, which will induce the plants to blanch better. The best soil for Endive is light land with a sharp grit in it. It may be planted all through August and in the first week in September in open ground; afterwards in sheltered spots until Michaelmas. Plant the late Endive in a rather deeper drill; this protects the hearts from early autumn frosts. Late Endive should be planted much closer than Early. Where there are any spare boxes and lights they may be utilized in this way: put them over the plants where they are growing as soon as early frosts come; then pull up the rows on each side of the box and plant them between those already covered. In transplanting be careful to put them in upright, for if they lay at all on one side, wet will most likely rot them. Keep them dry as possible, and protect them from frost. As soon as large enough, tie tightly on dry days with small willow twigs, which are preferable to bass for the purpose, being stronger and stiffer.

A good plan is to plant on a sloping bank for a late supply. If you have not such an opportunity throw up a bank about 3 feet high, and plant all over it 6 inches apart. This you will be able to protect from severe weather, though sometimes the plants will stand without any protection. That

which has not grown large enough for autumn use may be taken up from the open ground, and placed where it can be protected. Tie according to the demand; it will take longer to blanch in cold weather than in hot, for which allowance must be made.

A good head of Endive should measure from 18 inches to 24 inches in circumference, and should not be more than 10 inches high when it is tied. There are many sorts of Endive, but they may be classed under three heads, viz., Batavian, Green Curled, and French Green Moss. Of the first named there is a good sort very like Cos Lettuce, and useful for stewing, but in its growth it is rather tender. The next sort named is by far the best for a general crop. The last is not so large, but it is nevertheless a pretty, neat variety. The French export the latter largely during the spring months, and long after our home-grown plants have started for seed. This must be attributed to climate, as it is impossible to grow Endive in England after May, whereas I have seen good examples from France in June not at all run. Some folks lay tiles over Endive to blanch it, but it is not so good a plan as tying.

This plant requires to be carefully selected anually for seed, as it is very apt to sport. If this is not done, a good variety will soon become worthless. Seed plants of it might be grown in ornamental grounds, as the flower is of a pretty light blue, and the plant makes not at all an unsightly bush. When the seed is ripe, guard it against the depredations of birds and mice.—*J. M. M. in Gard. Chronicle.*

Horticultural Notices.

STRAWBERRY SHOW IN NEW YORK.

We were invited by New York friends to attend a grand strawberry show at the rooms of the Cooper Institute, on the 18th of June, but when we reached New York, we were told the show had been "put off for a week." We don't believe in such things. It is a grand humbug, and any board of managers guilty of such tricks, ought to be indicted as a common nuisance.

The following week, on the 25th, we went again. It was entirely too late for all strawberries south of Newark, and the consequence, there were not many competitors south of New York city; and but very few anyhow. These, however, exhibited very interesting collection, and divided amongst them valuable premiums. The chief kinds on exhibition were remarkably fine Agriculturists, Jucundas, Triomphe de Gands and Albany Seedling, with some thirty of less popular ones.

Amongst the newer ones not yet much known were Ida, Ripawam, and Durand's Seedlings, all of much merit in some particular character, but all with some defects which will prevent them from becoming the "one thing needful."

Horace Greeley offered a premium of $50 for the best strawberry seedling that should be as large as Wilson, as productive and firm in flesh, but of better quality,—but none came up to the requirements as far as the committee could see,—though Charles Downing "appeared" to be near the mark.

D. S. Gregory offered $50 for the best collection in pots,—two competitors brought sets, the whole lot of which would have brought perhaps $5 from any nurseryman who wanted a few kinds for a start. One of the competitors himself seemed to think asking $50 for them rather too poor a joke, and generously stuck in a large lot of stems with fruit around his plants to make himself feel less conscience-stricken. The plants then appeared to be very abundantly set with fruit, and well worth the money. An inquisitive committee man discovered this secret of making kinds "very productive," but failed to appreciate it; and, in consequence, gave the premium to the other lot, which we are sure would have brought the lowest figure "in market." There were other premiums of from $50 to $25, down to $3, extremely liberal offers, and which we think deserved a more liberal advertising in the quarters likely to bring forth a liberal competition from all parts of the Union, and thus meet the wishes of the liberal gentlemen who really desire to find out what is the best berry for general purposes.

In this the exhibition was a failure, although the quantity and quality of the fruit offered on the whole did credit to the exhibitors so far as it went.

FRUIT GROWERS' MEETING.

The Western New York Fruit Growers' Association held its Summer Meeting in this city on Thursday, June 27th. The attendance was not large, nor did the members seem inclined to discuss very thoroughly the topics chosen by the Committee. The show of Strawberries was fair, particularly in the line of new seedlings. No other fruit was exhibited, but some flowers graced the tables.

THE COMMITTEE ON FLOWERS

Reported that there were only two exhibitors, Messrs. Ellwanger & Barry and Frost & Co., of Rochester, and the display of roses from each was

very fine. In Messrs. Ellwanger & Barry's collection there were seventy-five varieties of Hybrid Perpetuals, of which the following were very fine and are recommended for general cultivation, viz: General Washington, General Jacqueminot, Alex. Fontaine, Augusta Mie, Geant des Battailes, Christian Puttner, Cardinal Patrizzi, Coupe de Hebe, Pourpre d'Orleans, Leon des Combats, Jules Margottin, Mad. Boll, Imperatrice Eugenie. Of Moss Roses there were fifteen varieties, among which the following were very good and highly recommended, viz: Crested Moss, Salet, Mad. Alvoni, White Bath, Captain John Ingraham, Luxembourg.

The display of Herbaceous Peonies was superb, particularly two new seedlings, one called Fulgora—a deep rose pink and very large flower. The other named Mrs. Dagge—a large and beautiful white—attracted a good deal of attention. The following, although older varieties, were magnificent and very conspicuous: Papaveriflora, Delachii, Louis Van Houtte, Pinpenea Superb, Chas. Morel, Violacea, Washington.

From the list of subjects presented by the Business Committee the first topic taken up for discussion was—"Which are the best four varieties of Strawberries for market?"

There were in all twenty-eight ballots cast, with six names on each ballot. Triomphe de Gand was on every ballot, 28; Wilson's next, 22; Hooker, 22; Jucunda, 17; Agriculturist, 16; Russell's Prolific, 9; Green Prolific, 4; Trollope's Victoria, 4. The other varieties named were scattered among twenty other kinds, each of which had from one to four votes.—*Rural New Yorker.*

CHICAGO HORTICULTURAL SOCIETY.

FIRST FLORAL EXHIBITION.

The first exhibition of this young Society came off according to programme, at Crosby's Music Hall in this city on Tuesday and Wednesday, May 7th and 8th.

Had the good people been so inclined, the passing through the city with their huge plants, should alone have been enough to have enlisted their sympathies and secured a good attendance. But alack, the Chicago people are too hard to wake up in this direction, to hope for very extended patronage; and there seems to be no hope, but to wait patiently while they are being educated up to an appreciation of the beautiful in nature.

Their parks lag, their homes often present anything but a tastily kept garden, and we opine will continue to, until they know how to enjoy such a treat as was brought together by the first exhibition of this Society.

The room, on entering, after the tables were arranged, presented a most beautiful appearance. Immediately before you was a grand arch of living English Ivy—some 7 or 8 feet high, brought there intact as it grows at the fine greenhouse of J. Young Scammon; on the right, supported by a noble specimen of Cryptomeria Japonica, (too tender here to stand our winters); on the left, by as noble a plant of the upright or pyramidal Cypress.

The centre table was an oval, filled up with choice exotics from the greenhouse of E. B. McCagg, Esq., Robert Kuntze, gardener. It is difficult to describe the enchanting effect produced by the tropic-like scene on this table; two huge Draecœnas, and a Charleswoodia beautifully in flower, forming a centre, around which were arranged the curious Plectogynea with its variegated foliage; a handsome old specimen of the Rhynchospermum, redolent with perfume; very handsome Caladiums, always attractive at an exhibition, not the less so, however, than the richly colored leaves of the hosts of Begonias, nor the curious Cyperus alternifolius, the economic Coffee Tree at present without berries, not forgetting the well done plant of Plectogynea with its handsome variegated foliage, nor the Nephrolepis neglecta.

Mr. Kuntze too, had another Rhododendron finely in flower; a genus of plants much too seldom met with, as they are certainly a gorgeous flower at this season of the year.

Just beyond the centre was a group of three plants from the same establishment, of most royal proportions. The centre a Maranta Zebrina, on each side—by equally large Plectogyneas.

The first table on the right was occupied with the plants from the late Mr. Williams' establishment, now carried on by his widow; conspicuous among these were the roses, certainly the best flowered in the room. We noticed particularly well done, the old Hermosa, always acceptable, Mrs. Bosanquet, a pretty, creamy white, and a very handsome flower, of the Souvenir de la Malmaison, a rose, when seen in its best, hard to beat.

The next table was occupied by plants from J. Y. Scammon's establishment, F. Eastman, gardener. His table was well filled, and having a large proportion of the rich Coleus Verschaffeltii, formed quite an attractive feature. He had very good Crotons, a Centradenia floribunda, a good specimen of the Begonia sanguinea; capital Calceolarias and Carnations, and several specimens of Musas, or bread-fruit, as they are called, along with

a glorious plant of the Alocasia. We should miss Mr. Eastman's collection from our exhibition.

Next to these stood Ad. Blumenschein's plants, a Florist, hence we must not expect such immense masses as from private gardens. But for well-grown plants Mr. B. is noted, and his table on the whole, was very effective. We notice, as especially worthy of merit, the rare Tropæolum tricolorum; very good specimens of the Silver Fern; some capital Begonias—particularly one called Mary—with a silvery leaf; another, Argentea punctata, quite zonal in character, as was Duchess of Brabant; while others were noticeable for very delicate shades of green and white.

Mr. B. is noted for Roses, and on this occasion had some of the largest flowers in the hall, one marked Mad. Cambaceres very large. His Pansies were certainly first-class, one a black, particularly striking. Mr. B. has a variegated seedling that seems to be quite an acquisition—of a golden yellow foliage, and seems to stand well. His cut flowers, a basket and hand bouquet, were as might be expected, well arranged.

Starting again from the entrance door, on our left comes Robert Pouley—we believe his maiden attempt at our exhibitions,—and he certainly had a noble display. The most conspicuous plant, perhaps, was an Aralia digitata, a very singular and beautifully foliaged plant, each leaf or set of leaves, is held on a long foot-stalk, springing from which, at its extremity, is a whorl of leaves, not unlike those of the well-known India-rubber tree, except those when expanded look like a parasol. His Azaleas were capitally done; one called Victoria, a white with the most delicate stripe of pink, and Reine de Pavier, somewhat more heavily striped, were splendid, showy objects, as was the old Ardens with its rich red flowers. Mr. P. seems noted for ferns and mosses, a class of plants much too seldom met with; his Pteris argyrea was the best in the room. On his table too we noticed for the first time at our exhibition tables, the tri-colored geranium, Mrs. Pollock; it is evidently one of the very best of the tri-colored section. Another called the Golden Nugget is a strange color for a geranium leaf, but effective from contrast. The Begonias on this table were good also; so was the Pilea muscosa—a plant with the singular property of opening its diminutive flowers with a cracking noise and emitting quite a smoke with its discharged pollen.

The table next to this is a notable one, not for fine foliage, nor for curious plants, but for mammoth examples of the old winter flowering Fuchsia speciosa—and one or two others. These are from E. Newsome, A. Sturges, gardener, and perhaps no plants in the room attracted more general attention than did these perfect tree-like plants, completely loaded with flowers. Mr. N., seems to have a penchant for something grand as his zonal geraniums were of immense proportions.

On the next table to these, stand Mr. R. Forsyth's gardener's contribution, quite noticeable for plants of the Aloe family; some very excellent Hyacinths; a great old plant of that curiosity the Philodendron Pertuosum, and a neat little one of the Palm called Chamærops humilis.

Near by stand the plants of Samuel Muir, a florist of this city. He had undoubtedly the best Calceolarias in the room, and the best *made* bouquet—so thought the judges, although we believe Mr. Reissig differed some from that opinion; but the fact is, his arranging of flowers is not what is generally considered first-class, by florists of standing. His flowers, however, are always choice, and this time his Brides' bouquets had an abundance of natural orange blossoms, and very costly papers on them.

Mr. Reissig had some plants also, but his *chef d' œuvre* was a huge basket of flowers containing, he stated, 150 different kinds of flowers. This, when first brought in, looked grand and elicited pretty general commendation.

Sulzer Brothers' table was particularly rich in well-flowered Azaleas, perhaps the best among which were Duke de Malakoff—an elegant rich red—a fine Criterion and some very good roses.

Edgar Sanders was not generally considered to be well represented and did not enter his plants for competition. He had some good Zonale geraniums, the new Achyranthes, neat little Coleus, and his new giant, or Tree Mignonette, on his table.

Mr. Phillips had a collection of soft-wooded plants near by.

The patriarch of Florists of our city, Mr. Brooks, of course had some things on exhibition; we never knew him absent.

John Ross exhibited an ornamental, self-acting Fountain.

Mr. Hovey, a large quantity of rustic adornments, and a lady—name not given—had some preserved flowers, so neatly arranged and dried that they looked all but natural.

In conclusion we wish we could say the citizens had done their part, moderately as well as did the gardeners—then the latter would not have the mortification of knowing that their receipts would not cover their expenses, while, as they thought, to be sure and do that much, they would vote no

premiums. Well, we hope at least it will have awakened an interest that will one day manifest itself differently.—*Prairie Farmer.*

SUMMER MEETING OF THE UPPER CANADA FRUIT GROWERS' ASSOCIATION.

STRAWBERRIES IN CANADA.

The summer meeting of this Association was held on Thursday, the 27th of June, in the Council Chamber of the Wentworth County Council, the chair being occupied by W. H. Mills. Esq., President.

The special subject appointed for the consideration of the meeting was then discussed, namely, strawberries, and the merits of several varieties fully canvassed. Dr. Cross said he had cultivated some forty kinds of this fruit, and had retained only two—Wilson's and Hovey. On motion of Mr. Arnold, seconded by Mr. Smith, it was resolved that Burr's New Pine be struck off from the list for general cultivation. The following varieties were then separately noticed:

Wilson.—This was unanimously pronounced a most desirable sort for the Canadian market, and is everywhere deservedly esteemed as a valuable, productive, and good flavored fruit.

Hovey.—Succeeds best in clay soils; but some thought it needed to be planted with other sorts for a fertilizer.

Hooker.—Mr. Arnold thought this a very desirable sort for an amateur, being fine flavored and of good size, but that it was too soft for market. After the expression of various opinions, several of which were adverse, it was finally recommended for amateur culture.

Trollope's Victoria.—Mr. Arnold and Mr. Martin had found this variety a poor bearer, and tender plant. Dr. Cross considered that it possessed the advantage of yielding a good large berry, but had also found the plant tender and not very prolific. Mr. Wolverton thought it endured the drought better than most sorts. On the whole, this, like the preceding, was recommended for amateur culture.

Triomphe de Gand.—The majority of the gentlemen present esteemed this kind very highly for size of berry and flavor, and coming in rather later than others, when the season was passing away, it generally commanded a high price. Mr. Arnold, on the contrary, did not entertain a high opinion of it. By the verdict of the majority, however, it was retained on the list, and recommended for general cultivation.

La Constante.—This has the market advantage of being late, and was considered by Mr. Bruce, the only grower present who had any experience of the variety, to possess very fine flavor, but to be suitable only for the amateur.

Russell Prolific.—Mr. Arnold had been disappointed in this strawberry, which he had not found so prolific as he expected, and the fruit has the disadvantage of lying on the ground; the plant, moreover, he found rather tender. Dr. Cross condemned it on the additional score of ripening irregularly. Mr. Holton thought it should be further tested. Mr. Beadle said it required high culture, and to be planted with staminate sorts; but, after all, considered it no improvement on the Wilson.

Large Early Scarlet.—This was generally approved as an old productive berry, ripening very early, and good to plant with staminate sorts. Mr. Arnold had not found it to bear a good crop. The meeting decided that it be retained on the list as a fit kind for general cultivation.

McAvoy's Superior.—Mr. Holton thought this a very good flavored kind, though the berries are apt to be imperfect; and, on the whole, he esteemed it much. Mr. Bruce, after some years' trial, considered it a very fair strawberry, and tolerbly prolific. It was decided that it be retained for trial.

Welcome.—Mr. Graydon thought it very valuable, because early and large.

Jucunda.—A variety favorably reported by several of the gentlemen present, who considered that it promised well, appearing to be hardy, good-flavored and prolific.

Agriculturist.—Was exhibited by Mr. Bruce, who, however, did not see that it was any advance on many others. Mr. Holton had seen it largely cultivated. Mr. Smith had not succeeded in getting well formed specimens, and feared it would need a fertilizer. Mr. Beadle had grown it last year, but did not esteem it any great acquisition. By a vote of the meeting, these last two varieties, and Metcalf Early, were placed on the list for trial.

Duc de Malakoff.—Mr. Bruce thinks this kind worthy of cultivation by amatuers.

Austin.—The same gentleman considered this a large and rather insipid berry, and a shy bearer.

Smith's Seedling.—This was a new variety, shown by Mr. A. M. Smith, who has had it two years in bearing, and finds it a large berry, of good flavor, productive, hardy, and grows like the Wilson, but is softer.

Mead's Seedling.—Mr. Beadle had received this from Mr. Peter B. Mead, of the *Horticulturist.* It is shaped like the Peabody, and has a fine flavor.—*Canada Farmer.*

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Hints for September.



FLOWER-GARDEN AND PLEASURE-GROUND.

Where there is likely to be a great deal of planting done, and only a limited number of hands employed, planting may commence early in the month. What leaves remain on should be stripped off, and the main roots shortened. They will then do better than if planted very late. In fact, if planting cannot be finished before the beginning of November in the Northern and Middle States, it is better as a rule, deferred till spring. In those States where little frost occurs, this rule will not apply. The roots of plants grow all winter, and a plant set out in the fall has this advantage over spring-set trees, that its roots in spring are in a position to supply the tree at once with food. This is, indeed, the theory fall planters rely on; but in practice it is found that severe cold dries up the wood, and the frost draws out the roots, and thus more than counterbalance any advantage from the pushing of new fibres. Very small plants are, therefore, best left till spring for their final planting. The larger things, and which we recommend planting in the fall, should be pruned in somewhat at planting. The larger the tree, the greater in proportion should it be cut away.

Attention should be given at this season to the flower-beds, by noting what has done well in your locality as a summer-blooming plant, as no time should be lost in procuring a stock for next year.—The best way to propagate all the common kinds of bedding plants is to take a frame or hand-glass and set it on a bed of very sandy soil made in a shady place in the open air. The sand should be fine and sharp, and there is, perhaps, nothing better than river sand for this purpose. The glass may be whitewashed on the inside, so as to afford additional security against injury from the sun's rays. Into this bed of sand, cuttings of half-ripened wood of the desirable plants may be set, and after putting in, slightly watered. Even very rare plants often do better this way than when under treatment in a regular propagating-house. In making cuttings, it is best to cut the shoots just under a bud,—they root better, and are not so likely to rot off and decay. A cutting of about three eyes is long enough for most strong-growing things, such as Geraniums, Fuchsias, &c.

Small-growing things, of course, will take more buds to the one cutting. From one to three inches is, however, long enough for most cuttings. They should be inserted about one-third of their way under the sand, which latter should be pressed firmly against the row of cuttings with a flat piece of board,—not, however, hard enough to force the particles of sand into the young and tender bark, which is often the first step to decay. For a few cuttings, they may be inserted with a dibble; but where many are to be put in, it saves time to mark a line on the sand with a rule or straight edge, and then cut down a face into the sand, say one or two inches deep, when the cuttings can be set against the face like box-edging. All amateurs should practice the art of propagating plants. There is nothing connected with gardening more interesting.

We have said a good deal about ornamental hedges in past numbers; but not, perhaps, as much as the subject deserves. Not only do they make the very best kind of boundary fences, and form in themselves beautiful objects, but they have a great use in small places in breaking off long and uninteresting scenery, and, by dividing perhaps one grand view into innumerable parts, make a small place seem very large indeed.

We have often given the principles of successful hedging, the main ones being to repress excessive growth at the top by repeated summer pruning and

training in a conical form, while the side and basal shoots should be suffered to grow as much as they possibly will, without let or hindrance, during the summer season. As soon as the leaves begin to fall, these lowermost shoots should be brought into shape, so as to render the hedge perfect.

Many kinds of bedding plants of succulent or sub-fleshy growth, can be taken up from the flower-beds, on the approach of frost, and cut in, say one-half, and packed thickly in boxes of soil, and kept in a rather dry and cool cellar through winter. Such fine plants make a much better show in the bed the next year than plants of the present season's striking. A cellar is one of the most useful appendages to a garden. Were we to have only *one* choice, we should prefer a cellar to a greenhouse for its general usefulness.

As soon as Dutch bulbs can be obtained, they should be at once planted. Of all fertilizers, well-rotted cow-manure has been found best for them, and especially if mixed with a portion of fine sand. They should be set about four inches beneath the surface of the ground, and a little sand put about the root when being planted. A very wet soil usually rots the roots, and a dry one detracts from the size of the blooms. A soil in which the generality of garden vegetables do well, is one of the best for these plants.

Those who have no greenhouse, and yet are desirous of preserving many half-hardy plants through the winter, employ *cold pits*. Choose the dryest situation in the garden, and sink about five feet in depth. It is important that no water can be retained at the bottom. The pit may be of any length required, and about five feet wide, so as to accommodate six feet sash. The inside of the pit may be built up of boards, or, if something more durable and substantial is required, brick or stone. The body of the frame may be built up a few feet above the level of the surrounding soil, and the earth which comes from the pit be employed in banking up to the upper level of the frame. Shelving should be made for the inside so as to extend from the base of the front to nearly the top of the back, on which to place the plants in pots. In the space which will then be under the staging, hard wooded and deciduous plants, as lemon verbena, fuchsias, etc., may be safely stored, while the more succulent kinds are shelved over head. The plants to be preserved in such a pit should be potted early, and be well established and healthy before being pitted; much of success depends on this. The less water they can be made to live on without withering through the winter the better they will keep. Straw mats must be employed to cover the glass when freezing times commences, and when the thermometer is likely to fall below 20°, straw or litter should be thrown over. Board shutters are also excellent, as it keeps the snow out from the straw and litter, which sometimes makes the mats very awkward to uncover when we wou'd like to give air. Very little light or air will be required through the winter, when the plants are not growing. If a good fall of snow cover the pit, it may lie on undisturbed for two weeks or more without injury. When a warm dry day offers, the sashes may be raised if convenient, to dry up the damp. Many kinds of border plants can be kept over winter this way with little trouble.

VEGETABLE GARDEN.

Cabbage and Cauliflower are sown this month for spring use. The former requires some care, as if it grows too vigorous before winter, it will all run to seed in the spring. The best plan is to make two sowings—one early in the month, and the other at the end. The rule is to get them only just so strong that they may lie over the winter in safety. Many preserve them in frames; but they should have wooden sashes or shutters instead of glass, so as not to encourage them to grow too much.

Cauliflower, on the other hand, cannot well be too forward. Most persons provide a pit of stone, bricks or wood, sunk five or six feet below the surface of the ground, into which leaves, manure or any waste vegetable matter is filled. When quite full, it is suffered to heat a little, when it will sink somewhat and have more material added to it; about six inches of good rich loam is then placed on it, and early in November the Cauliflower planted out. The object in refilling the leaves so often is to insure the plants remaining as near the glass as possible, which is very essential in the growth of Cauliflower. Lettuce is treated in the same way, and seed should be sown now to prepare for the planting. The Cabbage Lettuce is the kind usually employed.

The main crop of Spinage should now be sown. Properly cooked, there are few vegetables more agreeable to the general taste, and few families who have gardens will wish to be without it. It is essential that it have a very well enriched soil, as good large leaves constitute its perfection as a vegetable. As soon as the weather becomes severe, a light covering of straw should be thrown over it. A few Radishes may be sown with the Spinage for fall use.

Turnips also may still be sown. In fact, if the

soil be rich, a better quality of root for table use will be obtained than if sown earlier.

Celery and Endive will still require the attention in blanching, described in former hints.

GREENHOUSE.

Those who have greenhouses, pits or frames, will now see to having any necessary repairs attended to. White-washing annually is serviceable, destroying innumerable eggs of insects, in the war against which the gardener should always take the initiative; sulphur mixed with the whitewash is also serviceable. Powerful syringing is a great help to keeping plants clean, and should be frequently resorted to.

Propagation of bedding plants for another season will now be progressing actively. Geraniums, and other things with firm wood, do best in sand spread on the open ground, with a glass frame partially shaded spread over it. A great benefit will be found in most cuttings if they are placed for a short time in slightly damp moss for a few days before inserting the same, so that the wood at the base of the cutting may be partially healed or calloused over. Verbenas, and such cuttings, can be kept but a few hours, unless the wood is very hard. The harder the wood the longer they will do to keep so. Ripe wood of some things will be benefited by keeping two weeks. All this must be found out by each propagator himself.

It is a very good time to look around for soil for potting purposes. The surface soil of an old pasture forms the best basis, which can be afterwards lightened with sand, or manured with any special ingredients to suit special cases, as required. The turfy or peaty surfaces of old wood or bogs also come very "handy." A stock of moss should also be on hand for those who crock pots, in order to cover the potsherd; moss also comes in useful for many purposes connected with gardening, and should be always on hand.

Plants intended to be taken from the open ground and preserved through the winter, should be lifted early, that they may root a little in the pots. A moist day is of course best for the purpose, and a moist shady place the best to keep them in for a few days afterwards. Any thing that is somewhat tender had better be housed before the cold nights come. Some things are checked without actual frost.

Ornamental annuals for winter-flowering should be at once sown, not forgetting Mignonette, to be without which will be an unpardonable sin. Chinese Primroses, Cinerarias, Calceolarias, Pansies, Polyanthus, etc., should be sown. Winter-blooming Carnations and Violets should not be forgotten. They are now essentials in all good greenhouse collections. The Calla Ethiopica, old as it is, is an universal favorite, and should now be repotted, when it will flower through the winter finely. Oxalis, Sparaxis, Cyclamens, and such Cape bulbs that flower through the winter, should be repotted now. They are an easily grown tribe of plants, and should be in more favor.

This is emphatically the Dahlia, as the next is to be the Chrysanthemum month. Dahlias do not grow much through drought, and better not; now that September has come, they should be stimulated to grow, by copious waterings, and fine flowers will be the result.

White flowers are the chief charm of a greenhouse. The following is a list of the most desirable for this purpose:—Abutilon striatum; Acacias in variety, all are late winter or spring-bloomers; Alonsoa Warcewiczii: Alstrœmeria, pretty tuberous plants flowering from March to May in the greenhouse; Ardisia crenulata, red berries and very dark green leaves; Ageratum album, A. cœrulea; Azaleas in variety; Begonia in variety, particularly B. parviflora, B. incarnata, and B. fuchsoides; Bletia hyacinthiana; Bouvardia leintha; Epiphyllyum truncatum and its varieties; Camellias; Cestrum aurantiacum; Cheiranthus in varieties; the double Wallflower is particularly desirable; Chorozema varium; Cinerarias particularly the new dwarf varieties; Auriculas; Correas, the new cardinalis is the best; Coronilla glauca; Cuphea strigillosa and platycentra; Cyclamen persicum, coum, and hederæfolium; Daphne indica in variety, and D. cneorum when a little forced; Iberis sempervirens; Epacris in variety; Eupatorium elegans; Fabiana imbricata; Gardaquia multiflora; Genista rhodaphne; Geraniums in variety; Habrothamnus elegans; Harbenbergia monophylla: Kennedya Marrayattæ; Heliotropes; Jasmines, yellow and white; Lachenalia tricolor; Lantana in variety; Leschenaultia formosa: Linum trigynum; Mahernia odorata; Manettia bicolor; Melaleuca speciosus; Metrosideras floribundus; Olea fragrans; Oxalis Bowii, flava and others; Passiflora Loudonii; Pentas carnea; Petunias; Plumbago capensis and rosea; Polygala myrtifolia; Rondoletia anomale; Ruellia formosa; Salvia gesneriflora; Solanum capsicastrum; Sollya heterophylla; Stevia serrata; Tropæolum Lobbianum and its varieties; Veronica speciosa and its varieties.

Of plants that flower in winter, requiring a warmer greenhouse than the above, the following are

about the best:—Adhatoda cydoniœfolia; Allamanda cathartica; Angelonia Gardneriana; Aphelandra Ghiesbrechtii; Œschynanthus, any of the species; Centradenia floribunda and rosea; Chirita sinensis; Clerodendron fallax; Cypripedium venustum; Euphorbia splendens and Jacquinæflora; Poinsetta pulcherrima; Franciscea exima; Gesneria elongata and zebrina; Heterocentron, rose and the white; Justicea carnea; Cyrtanthera magnifica; Lasiandra splendens; Pleroma Benthamiana; Mandevillæ suaveolens; Meyenia erecta; Medinilla magnifica; Mussænda frondosa; Porphyrocoma lanceolata; Russellia juncea; Stephanophysum Baikeii; Thyrsacanthus rutilans.

Communications.

GARDEN VISITS.

BY THE EDITOR.

Travelling from Philadelphia towards New York, a little over three hours brings us to Elizabethtown, New Jersey, and about five minutes walk from the station is the Nursery of

D. D. Buchanan, son-in-law to the late William Reid, under whose management the nurseries obtained a world wide reputation. Mr. Dole, who for so many years was superintendent under the late proprietor, we found still at his post, and the business therefore carried on much as Mr. Reid had it. The beautiful lawns, roads, and hedges which, with the scrupulous neatness of all things which made the place so famous, were not quite so apparent as in times past, but this was no doubt owing to the peculiar wet season, which has in so many nurseries disarranged the usual routine of labor. The variety of the collections is still kept up and the quality well maintained,—additions of new things being regularly made as has always been done here.

The hedges, which so many go to see, are beautiful specimens. The Osage and Honey Locust still prove the best protective kinds. The Hornbeam and the Beech beautiful ones of an ornamental and very strong. Amongst the evergreens, White Cedar, Hemlock and Arbor-Vitæ carry away the palm. Amongst the rarer evergreens was a fine specimen of *Taxodium sempervirens*, the red wood of California. In most cases it is not hardy in the east, but here and there one with an extra hardy constitution survives, and when it does it is as in this case a valuable prize to the proprietor. A few miles from the old grounds, Mr. Buchanan has some fifty acres put into nursery stock within the last two years. Here are found a very large stock of dwarf and standard Pears, Cherries, Apples, &c., with many thousands of young evergreens all in first-rate condition.

Elizabethtown when we last saw it was a town which appeared to have finished its growth, but it has since made a new effort, and has become a suburb of New York. Taking advantage of comparatively low prices as compared with New York, and the rapidity and frequency of railroad communication, many men buy and build here who do business in the city; new buildings in first styles are therefore abundant, and Landscape gardening therefore prosperous.

Evergreen Cemetery on the west of the town is a much more prettily arranged place than most country burial places. To us, however, its chief interest was as the last resting place of William Reid, one of our earliest and best friends, and whose memory as an active and useful Horticulturist will long live in the land. A neat shaft erected by himself over his deceased wife marks also his own grave. A circular tract, enclosed by a low and well dressed hedge, encircling a well kept grass plat without any other ornament, is a fitting tribute to one who so much gloried in these natural beauties while alive. Near the Cemetery was the nursery of

John Hutchinson, rather a new beginner, but exhibiting signs of growing prosperity. Mr. H. has been a gardener in some of the best places about New York, but like most first class gardeners ultimately concluded to row his own boat, and launch out into the commercial sea. His chief branches appear to be cut flowers, bedding plants, and such small shrubs and stock as would suit cemetery purposes. He prided himself much on his Geraniums, and Verbenas; many seedlings of the last were really of first-class excellence. Amongst the bouquet plants in use here we found an old acquaintance the *Santolina Chamœcyparis*, a first-rate thing with finely cut foliage like a Chamomile, to which family, although a shrub, the plant belongs. Arriving next morning in New York we prepared to see the

Great American Institute Strawberry Show, but the plant proved to have imperfect blossoms, and through not being properly fertilized by the Director variety, which is generally found the best for that purpose, the whole thing proved "bogus," and there was no fruit to see; so to smother our disappointment we took the boat to Flushing to seek that comfort from Flora, Pomona had denied to us.—Near the depot in Flushing is the nursery of

Parsons & Co., one of the old time nurseries, and still maintained in the highest order of nursery excellence. In many establishments we find a few

items grown on a large and superior scale, but in this we find *everything* grown on a scale worthy of the name of nursery. We hoped to see the Rhododendron in its prime, but they were a little past their best, but still in a condition to make it worth ones' while to take a long journey to see. In a recent number of our journal we took occasion to say that we did not think American Horticulturists fully appreciated what was being done here to popularize and cheapen the growth of the Rhododendron, but we found that we really did not know ourselves how much they were doing. Waterer and Godfrey, and some other English florists, have probably a larger extent of *plants* as they raise many *seedlings* which are planted out and sold as cheap plants; but in the number of *grafted plants*, we question whether any of the nurseries of the old world could make a better exhibit. There must have been between *thirty and forty thousand* of these grafted plants, of which ten thousand had been worked and set out the past season. It is very important to the purchaser to have grafted plants, because great numbers of the hybrid Rhododendrons prove tender, but when once proved very hardy, and with other good qualities to recommend it, all these are perpetuated in the variety by grafting it. Most of the varieties in bloom were of the *Catawbiense* breed,—those of the *Maximum* race had not yet begun to flower—together they keep the Rhododendron season nearly six weeks in bloom, and make therefore, quite an attraction to the pleasure ground no other plant can do so well. We advise every one who wishes to see how easily the Rhododendron can be grown in the United States, and how cheaply and in how vast a quantity they can be furnished, to pay a visit to these grounds about the middle of June next year. Indeed we think Parsons & Co., would do the public a great favor to announce every year through newspapers when they are expected to be in full bloom, that visitors might come and see them in all their glorious beauty.

The native grape is very largely grown here. They are planted in the open ground, but sash are placed over them in order to protect them from the weather changes, while they are newly started. There are several *acres* of glass so employed, entailing a vast expense to the proprietors, but they think it pays them in getting a hardier constitution to the plants, for they very justly argue that a plant's constitution is made for it in infancy, and if by exposure to changes of temperature in early spring, cold rains, and the many checks it is liable to from untoward circumstances, these injuries become a part of the constitution, which it is the part of wisdom to avoid by artificial means. Their principle is "take care of the vine until by age and vigor it is enabled to take care of itself." They adopt this pains-taking rule with all their stock. "Why," we asked, "is that expensive guard placed about the young Rhododendron bed?" "Well," says Mr. Trumpey, the propagater, "being only grafted last year, the union may not be very strong, and it keeps people from getting in amongst them and breaking them off." The young evergreens which are raised here from cuttings and seeds by the thousand are served just as carefully, being placed in frames, covered with slats to let in light without too much sun. Such hardy things as Arborvitæ, Hemlock, &c., are raised this way, and they say they find their profit in this extra attention.

Besides Rhododendrons, Grapes and young evergreens, much attention is given to the Rose. Most of the new ones are imported and tested by the side of the older ones, and their characters carefully marked before sending out. The great want of good white hardy Perpetual roses seems in a fair way to be supplied, as we noticed amongst the new ones several quite as good as that rare old summer flowerer Madame Plantier.

In a former notice of the grounds of Parsons & Co., we noticed the many new and rare Coniferæ in which the place abounded, but we cannot again refrain from noticing the *Picea Parsonsiana*, as being, we think, the *most beautiful* of all the Pine tribe. There appears to be three forms of this tree under cultivation, *P. grandis*, *P. lasiocarpa* and *P. Parsonsiana*, all probably the same species, but yet sufficiently distinct varieties as to make it worth while to reserve a separate name and propagation for each. Which is the prior name for the species, we do not now know, though we think Parsonsiana was so named by Hooker *in advance* of *grandis*, but the last has come into general use. Parsonsiana differs from other forms of grandis in having the leaves curved upwards on the branchlets, giving the plant a *Fernу* look, which in a tree is always prized. From here we wended our way to

Greenwood Cemetery over beyond Brooklyn, to go away from New York without seeing which would, before the Central Park days, have been a great omission in a traveler. It is a place evidently designed by nature for a Cemetery; so well has she furnished the materials for a first-class specimen of art, that man seems to have not thought it worth while to do much. Beyond making roads through the natural channels, between the broken ground, there was nothing to indicate any idea whatever of cemetery gardening, while the monu-

ments though many of them ranging from ten to fifty thousand dollars, as a rule were inelegant and some indeed in quite bad taste. It is to be regretted so much of good intention should be so poorly realized, and so many good opportunities lost to the art.

Near to Camden, about ten miles out, is the chief region of the fruit-growers who supply Philadelphia, New York and other places, with much fine fruit. Collins, Parry, Andrews, Allen and others, well known to the readers of our advertising pages, reside about here. Our visit was made just in time to see the Philadelphia Raspberry in its prime, and the Wilson's Early just beginning to ripen its Black diamonds. Our first call was at the

Nurseries of John Perkins at Moorestown. Here we found the nursery business apparently prosperous, young Peach trees in good quantity and thriving, and a good miscellaneous collection of fruit and ornamental trees of a character suited to country districts. Fruit was also largely grown for market, which seems to enter into the nursery business about these parts as a legitimate and not a very unprofitable branch. The Strawberry, Blackberry and Raspberry were the main crops, although considerable business is done in raising early apples, which they say constitute a very profitable crop. We were told here Philadelphia Raspberries brought at wholesale 40 cents per quart, and as we had priced some in the market in the morning at 30 cents per pint, we readily believed correct.

J. S. Collins is near to Perkins, and his name is chiefly connected with the Wilson's Early Blackberry, which here is grown on a large scale. Mr. C. has found what we indicated in a former number, that the flowers do not all properly fertilize themselves, and thinks it would pay well to have a few rows of Lawton or some other good fertilizer grown occasionally with the other. This would be no loss to the crop, as something is required to come into bearing after the early Wilson's have been all gathered. We think much injury has been been done by statements that this variety is so much earlier than any other berry. This is not so. The Dorchester will produce ripe berries quite as soon as this, but the real advantage of the Wilson is that the same day a single berry or so may be ripe on a Dorchester, you may find a pint on the Wilson. So that for all *practical purposes* it is the earliest berry yet known, while its fine size, good flavor, and abundant bearing qualities render it on the whole a real acquisition to the race of summer fruits.

Mr. Collins has a brother near him who also grows Blackberries largely, and who had Lawton growing near the Wilsons, and the result was no imperfect fruit, but one of the most abundant crops we ever saw or thought possible on any Blackberry.

At Mr. Parry's the main feature was the Philadelphia Raspberry, grown on such an immense scale in one lot without a fence as far as the eye could reach, one might almost fancy himself on a Jersey barren, but for the bushes breaking down with fine fruit on every side of him. Immense quantities of fruit were going to waste, which we interpreted told a tale either of difficulty in getting pickers in a country district, or of a crop ripening unexpectedly for the arrangements. In Mr. Parry's absence we guess the former, and those purposing to go into the fruit business in such districts should weigh well not only "cost" of picking, but the chances of getting them picked at any price before putting too much capital into the business. With regard to the quality of the berry on which so much has been said, we note that where the shoots are extra healthy and vigorous the flavor is not inferior to the ordinary Antwerp kinds; but where the the shoots are weak or from any cause have a stunted growth, the flavor then is inferior. Great vigor and health therefore is essential to flavor in this fruit. It is remarkable that fruit which has so much sterling merit should have been in the vicinity for so many years, without any one seeing its great popular value. Mr. Parry has done the most towards it present reputation, and in consequence has done the people a service which fairly entitles him to the "comfortable circumstances" report says it has obtained for him. We saw many seedlings from the Philadelphia Raspberry here, some of them superior in flavor to their parent, but none we believe equal in productiveness. The much talked of Clarke Raspberry was also here in good quantity: its flavor is good,—equal we should say to the best of the other foreign kinds, with which we suppose this affiliates in "blood,"—and the foliage was very fine and healthy—so long as which continues it will be as "hardy" as other kinds are under similar circumstances. We do not think, however, that the plants from what we saw here will yield as readily as Northumberland Fillbasket, or some other kinds which have been popular in their day. Passing from the East of Philadelphia to the West, we find ourselves in the borough of West Chester, over 20 miles from the former city, and the first place we drop on, is the

Fruit Farm of Miss H. Trimble. We have noticed a great deal lately in the Agricultural papers about 'Women in Horticulture,' because one estima-

ble lady is carrying on the nursery business on the Hudson. We do not think it is so rare an occurrence. We do not know why it should be. At any rate, Miss Trimble has made fruit raising a fair success. Her chief efforts are to raising hot house grapes and early strawberries. When we were there (end of June), the grapes were ripening, many—over 500 lbs.—had already been cut and marketed. The whole weight in the houses would be probably 1500 lbs., and the receipts we suppose about that many dollars. The house is T shaped, one wing we suppose about 100 feet, the other perhaps 75. The houses are plainly, but substantially constructed, and including the hot water boiler and pipes, we should suppose would cost at the time of building, some six years ago $1500. The roots had been allowed to run too deep in the borders, which is unfavorable to healthy fibres, and hence a few bunches had not colored very well, otherwise these houses filled with beautiful fruit was one of the most perfect grape shows we have ever seen. Miss Trimble works amongst them herself, with the assistance of one very intelligent assistant. All the bunches were thinned by her, and with a just pride in the use of the scissors, she thinks, thinning grapes should always be woman's work. The strawberries are mostly raised in boxes, twenty-five to fifty plants to a box, and these boxes kept near the glass by temporary platforms. They are ripe before the grapes much interfere with them, and notwithstanding Southern competition, are found a profitable crop to raise. The nursery business is growing to vigorous manhood in West Chester.

Otto & Achelis have added largely to their landed possessions, we were not fortunate to find either partner,—Mr. Otto being in Europe—but a hasty run through with the foreman exhibited to us evidences of prosperity. Apples, Peaches, Pears and Cherries were in immense quantities, and of *Potatoes* there was probably fifty acres at least, mostly of the new kinds, much sought for, for seed purposes.

Hoopes, Bro. & Thomas, have also a very fine nursery, probably 100 acres in actual nursery, besides many others in the farm crops a well conducted nursery must have to fill in the resting periods, between the crops of trees. The Peach was largely grown, there being perhaps 250,000 ready for this fall sale. In passing through this crop we noticed Van Buren's Golden dwarf and Italian dwarf, which some have thought identical, growing side by side, and very distinct. The apple and cherry were also in immense quantities, and amongst the latter we noticed the Morello kinds were extensively favorites. This firm has always been noted for its liberality in maintaining a fine collection of rare trees and shrubs even during times when they "paid" little better than weeds; but they now have their reward in the experience which they gained as to the merits of the various things on trial, and have now therefore a good stock of many rare things for which from their adaptation to popular wants must soon have a popular demand. The place is particularly rich in specimens of Coniferous plants which the senior member of the firm takes under his special protection and study. The result is he has prepared a work on this class of trees and shrubs combining a popular with a scientific treatment, which we see announced as preparing for publication by Orange Judd & Co., and which we shall look forward to with much interest. Returning to Philadelphia we passed a few hours at

Fern Hill, the country seat of H. Pratt McKean, one of the most liberal patrons of gardening in the State. We have before described this beautiful place in our Journal. Mr. Alexander Newitt is the present gardener, under whose management every thing is kept in first-rate order. A few years ago a beginning was made for a collection of Orchidaceous plants, and now there was a large number of these very valuable and envious plants gathered together. There were some *Epidendrums* and *Maxillaria* in flower, and a *Stanhopea oculata* filled the house with fragrance from a very fine blossom it had pushed through the bottom of the basket. The collections of Ferns and other green and hot house plants were very full and yet select, and in the open grounds the bedding plants had covered the flower beds very successfully. Mr. Newitt employs the different shades of Geraniums for masses of color with the very best effects. We notice with pleasure that while gaiety was not lost sight of, and these masses of one color employed for that purpose, the real love of flowers for their own beauty was not forgotten, for beds of mixed flowers flanked the sets of flower masses, and in them there was a daily store of novelty and interest with every opening bud.

STRAWBERRIES.

BY E. FRYER, NAPERVILLE, ILLS.

We have had a splendid crop of Strawberries in Northern Illinois and Westward this season; such huge berries—deliciously sweet—pleasing to the eye, the palate, and the pocket, probably the greatest in quantity and best in quality ever raised east of the mountains before.

Green Prolific beats the Wilson in productivenes

by fully thirty per cent., the fruit is better flavored, and the plant fully as hardy and a very strong grower.

Austin Shaker bears immense crops of large, handsome berries, fair flavor, plant perfectly hardy, does best grown in hills with the runners cut off—an excellent variety for amateurs, but perhaps too soft for distant marketing.

Russell's Prolific and *Buffalo Seedling* as we have them here are two very distinct varieties, the former being staminate and the latter pistillate, yet the size and flavor of the fruit are nearly alike, with perhaps greater richness in favor of the Russell. The flavor of both is excellent, but though the plants are as hardy they are not so productive as the other varieties above named.

Wilson, about as hardy and productive here as it is almost everywhere.

Agriculturist.—I expected this variety would prove a failure here; thought our severe winters would use them up, but after two years' trial am agreeably disappointed. The plants are just as hardy as Green prolific or Wilson, need high culture, but the berries are of the most extraordinary size and the quantity in proportion—flavor superior to any other variety grown here.

During the past three years we have had sixteen varieties of strawberries under trial here, and from notes taken each fruiting season find the above varieties all that are really worthy of cultivation. The Agriculturist, Green Prolific, Wilson and Austin Shaker give the best results as to hardiness of plants, productiveness, and flavor of fruit.

Among discarded varieties are Golden Seeded and Filmore, the latter a large, handsome berry, but so deficient in flavor as to be deemed worthless. Hoed up several thousand plants this season, while there was yet some fruit on, and threw them in the hog-pen so that nobody else shall get disappointed even if he should insist on it. The above experience of course is only local, but I think will, in a general way, apply to a great part of the north-west.

PEAR SPROUT FROM A WHITE THORN.

BY MR. J. STOUGH, GENESEO, ILLS.

In the March number of the *Monthly*, page 79, we read,—"When such cases are given, viz: pear sprouts doing what *we* know they ought not to do, they should be thoroughly investigated."

Now I have to report that another pear sprout made its advent this spring out of a wild thorn, four inches below the graft.

I, therefore, respectfully ask Dr. J. Stayman to act as a committee, and give to those said productions that thorough investigation which has been suggested.

THE UNFRUITFUL PEAR TREES LOADED WITH FRUIT.

BY DR. J. S. HOUGHTON, PHILADELPHIA.

The unfruitful pear trees on my grounds, which have been the subject of discussion in previous numbers of the *Gardener's Monthly*, are this season loaded with an abundant and fine crop of fruit.

This result by no means contradicts the opinion of Professor Wood, that many of the blossoms exhibited a low state of vitality, and a deficient supply of pollen; or the opinion of Mr. Meehan, that the trees were weakened by the excess of blossoms.

It appears, however, that notwithstanding the great number of defective blossoms, there were numerous other blossoms on the trees of a vigorous, perfect, and fruitful character, which have set a fine crop of pears, not on scattered trees only but a full and uniform crop on nearly five thousand trees, covering upwards of five acres of ground. The opening of the season, as all fruit cultivators are aware, was one of the most unfavorable that we have had for many years. Cold north-west rains prevailed for many days during the blossoming period, and these rains were preceded by severe frosts. The trees in question are located in a well sheltered position; but all other trees in my orchard exposed to the full force of the storms, had nearly all their blossoms frosted and destroyed. The value of perfect shelter in preserving fruit blossoms, was perhaps never more strikingly exhibited.

But why did the formerly unfruitful pear trees set a crop of fruit in this most unpropitious season?

Mr. Meehan says the system of surface culture which I pursue is a "pernicious" one, which he has long combatted with great earnestness. He advocates, not pear trees in cultivated ground, but "pears in grass." He also opposes my method of close pruning. Now, I claim that my method of culture, which this year for the first time has been brought to something like perfection, was the direct cause of producing my present crop of fruit, and that under any other system, especially under the "grass" system, the crop would not probably have been produced.

I wish the readers of the "*Monthly*" to understand that this contest of opinions between Mr. Meehan and myself, is a perfectly friendly one. His opinions do not in the slightest degree disturb my feelings or shake my judgment on the question of the true method of culture. I believe I am right. I believe that my method of culture is the only one that

will secure annual and good crops of fine dessert pears. I have made pear culture a specialty for nearly ten years, and I have taken much pains to probe the subject to the bottom. At last I have brought the notoriously barren Duchesse into a happily prolific condition. The trees show no signs of increasing debility, while carrying their heavy load of fruit. None of them appear to be stunted by the effort—the foliage is strong and green—there is no blight in leaf or limb—and the fruit is unusually free from spots or fungus. The leaders of nearly all the trees are also growing very freely. Many of them, while bearing a heavy crop, have made a growth of three to five feet of strong new wood, showing not weakness, but a high state of healthy vitality.

There are perhaps some reasons for the results here noted, besides those already spoken of. The success in fruiting, and the luxuriant growth of the trees while fruiting, are not alone due to surface culture and the method of pruning. Other causes are at work, viz: a naturally good soil, proper manuring, and liberal manuring: in other words, a good soil highly fertilized.

On the subject of manuring or fertilizing, it is quite likely that Mr. M. and myself would have another friendly difference of opinion. [No.—Ed.] But here again I believe I am somewhere near right, although the subject is one of the most complex that can possibly be started, and wide differences of opinion exist among the wisest cultivators, as to the proper fertilizers to be employed in any kind of culture. I do not claim to be wiser than my generation, but I hold some views on this subject which I think I have proved to be in some degree valuable.

I propose, at some future time, not perhaps far distant, to publish my experience and my opinions on pear culture, and I do not feel willing to let Mr. Meehan put upon record the declaration that my system of culture is "pernicious," and the result "weakened vitality" in the trees, and unfruitfulness in all the blossoms, without also putting upon record my declaration that the condition of the orchard at the present time does not warrant these remarks, and the assertion of my firm belief, that my system of culture is the most perfect and successful one that has ever been practiced within the range of my knowledge. I take friendly and pleasant issue with Mr. Meehan and all other advocates of "cultivating pears in grass," and also with the apostles of no pruning, and will say of them, that the test of merit in the various systems of culture should be, as was said of the true apostles of old, "by their *fruits* ye shall know them."

[It seemed capital sport to us to pelt the frog as we did. We thought we had "finished" him, but this movement of the muscles has an ugly look for us. Fearing "vitality" may be resuscitated, we will hold off for a while; but, in the meantime, to see whether he is really alive or only "shamming," suppose we poke him a little with, "was it really one of the most unfavorable seasons for the pear for many years?"—Ed.]

PEAR BLIGHT.

BY MR. SAMUEL FEAST, BALTIMORE, MD.

Your unbelief in what I stated in my two communications in your May number, establish but one of two things, that your experience in planting of trees is very different to mine, or that there is none so blind as he that will not see. You must excuse me, the subject under dispute requires not what is falsely called science, it is a subject that all lovers of a good fruit are interested in. I had read your various editorials on the subject. My statement that ignorance was bliss; this you have ratified by saying that you were not prepared to swallow that electricity was the cause. I am now an old man, like unto a mathematician that had been taught forty-nine years back that twice two made four and had been working out all his problems during that time always to his satisfaction, and in every work on mathematics he took up some student would make it appear that two and a fraction with an addition of one and one ninety-nine times of a fraction, &c. than the President of the College in order to instruct his pupils in a more scientific mode, states that one and three-fourths, with two and one-fourth may make four, but he is not prepared to believe it. I have done with irrelevance.

Now, Mr. Editor, why keep this subject open; every part of this country is subject to it excepting yours. John S. Skinner, who first established the *American Farmer* in Maryland, the first periodical on agriculture in the country sold out to a man by the name of Hitchcock. I was in his office some time after, and taking up his last number, where nearly three pages were filled on the subject of wheat turning into chess, by a Dr. Rives, from the Eastern Shore of Maryland. I remarked to the editor, that he must have a poor opinion of the information of his subscribers or he would not fill the pages with such stuff; he very gravely answered me by saying that he liked to encourage such communications, they caused controversy and filled his columns. I do not say, Mr. Editor, that this is your case. At that time there were but few that took part in such matters; happily, now the reverse.

Let your readers turn to page 73, and see the

various statements of S. S. Cooke, of Chillicothe, Ohio; 138, by Mr. W. M. Mills, of Hamilton, Canada West, and last by Mr. P. J. Berckmans, of Augusta, Georgia; these three communications from different parts of the country, if read with care, will convince the inquiring mind that it is of all importance that a closer observation than what has been should be resorted to. As to Mr. Berckman's theory of the degenerating of varieties by false propagation, &c., this will not stand good.

There is talent enough in the country to find out a remedy for this scourge if once set in a right direction. I do not care if the second Franklin be found in your city or elsewhere. The branches I furnished you the last time, were taken off a Bartlett, one was from a leading branch of the north side of the tree, showing the free growth where it was not effected, the other from the south from a leading branch, showing the stunted growth and injured bark, with four strips of bark taken from said branch three and four feet below, from north and south side of the branch, showing the black on the south side; the other branches were from a Winter Nelis. I hope these branches will convince you of the false ground taken as to fungus without the aid of your specks, or that much abused instrument, the microscope, which has been made to tell such monstrous falsehoods of late by that genius, imagination.

Mr. Cooke says, "may I not ask, has not the age arrived when the cause of blight should be certainly known;" he then goes on to give his own observations and experience, hoping that it might excite criticism if nothing more; he then asks, "what is the leading theories as to its cause." His first is Frozen Sap, by A. J. Downing, which he styles excellent authority; then Mr. Field has come to the like conclusion, then J. J. Thomas, changes of temperature, &c. The last and best of his reference is by Professor J. H. Salisbury, of Cleveland, Ohio. (let me beg of the readers of the *Monthly* to notice particularly what the Professor's experience has concluded on). Mr. Cooke then states that having stated the various theories, he will give his own experience in which fogs, vapors, and miasma forms a large part, but leaves in the mind of the reader that he only wants to be put on the right track.

Mr. Mills coincides with Mr. Cooke; he thus brings forward the Parasites and compares fungi to the midge in a grain of wheat. Is not this a comparison: one is a living animal, being endowed with motion and life, the other what, (here is the secret). In your remarks, Mr. Editor, you state, is it not probable that they take root upon a living subject, as the Mistletoe on a persimmon tree. I will answer as to the Mistletoe: it bears a berry the size and color of the White Currant; the centre is a hard gummy substance, with a thick covering of vicid matter. In 1864, I grafted a row of the Northern Greening and Ribstone Pippin apple trees, by making an incision and rubbing the berry in the bark on the under side of the limb, and in the spring of 1866, had the pleasure of seeing every seed had taken root; the bark must be opened so as to prevent water lodging in the wound.

As to the conclusions Mr. Berckmans has arrived at, ought he to be considered as authorityin everything relating to the pear; his whole statement is foreign to the subject of blight, excepting the conclusions he has arrived at, wherein he states:–"I confess, although my observation has been, never having observed any before the appearance of blight, but often afterwards."

This fungoid theory which has taken such hold on the minds of many of the ablest investigators in the country, arises from an incorrect knowledge of the origin of the tribe of fungi. The lichen and fungi tribe forms a large part of the creation on this habitable globe, and appears to be little understood. The lichen can be found on living objects, but fungi never; for that reason it cannot be the cause of blight. I have never read of any author who has asserted what I now state: that every living plant, when in a state of decay, and placed in a proper location will produce a fungus in form according to its nature. Fungi being the lowest order of creation, being spontaneous, arising from whatever the constituents of the vegetables are composed of, being in a state of decay; this coming in contact with the atmosphere forms the different shapes that we see, but more numerous when the power of the microscope is made use of.

I stated in my first communication to you of a line reaching across the Atlantic. I have often wondered if college teaching makes wise men or the reverse, for on carefully perusing the various productions on this blight, the more scholastic, the farther from what they would illustrate.

KEYES' EARLY TOMATO.

BY X., BOSTON, MASS.

This variety seems to be distinct, and to have some good points. But how can Messrs. Hovey & Co. meet their assertion, that it is 30 days earlier than any other kind. The facts being so opposite, it is not too strong language to say that the statement is false. The Keyes, so far from being 30 days earlier, is actually not so early as the ordinary

early red kind. A neighbor, who planted somewhat largely of several kinds, giving them all an extra early start in hot-beds and a warm southern exposure, side by side, and without advantage to either kind, reports that the Keyes' lags some days behind. This is the experience of many others in the vicinity of Boston. If the introducers were ignorant of the time of ripening, of course they could not honestly make any statement. If they knew the time, what then shall we conclude?

[In addition to the above note from our Boston correspondent, we have many oral complaints from other persons, in not very complimentary terms.

We do not think, however, as some of our friends believe, that there has been any deliberate intention to impose a worthless variety on the public. We believe they honestly thought they had a tomato 30 days earlier than any other. We have no doubt the tomatoes referred to in the commendations *were ripe* 30 *days earlier* than the others, just as stated.

But we have shown in our Journal, on several occasions, that it is no test of earliness for a plant to be set out *after another*, and yet ripen first; and when this very tomato first came out, we had an article especially to show this.

The following testimonials of the Keyes' Tomato gives the case just as we should suppose:—

The following testimonial, from the Chairman of the Vegetable Committee of the Massachusetts Horticultural Society, Mr. C. N. Brackett, who is familiar with all the best tomatoes, is the best evidence of the great value of Mr. Keyes' new seedling:—

"This new variety was originated by Mr. C. A. Keyes, in 1864. It came up in a plot of ground where several varieties had been grown the preceding year. Not having the appearance, or the usual smell of the tomato plant, Mr. Keyes transplanted it out of curiosity. The plant produced a cluster of fruit, 20 in number, within 12 inches of the root of the plant, ripening at least 30 days earlier than any of the several varieties in Mr. Keyes' grounds. This year he tried it with the Tilden, and other leading kinds, and found it 30 days earlier than either. Whole clusters, from 10 to 20 in a cluster, of the Prolific were fully ripe, while the Tilden contained but one single ripe specimen on the vine. The fruit of this variety grows in clusters, with from 7 to 20 clusters on on a vine, and the fruit not over 18 inches from the root. The foliage is very large, some of the leaves measuring 8 inches in length by 6 in breadth, entirely distinct from other varieties. Mr. Keyes exhibited both fruit and foliage of the tomato at the Annual Exhibition, and it is, in the opinion of the Committee, a new and distinct variety, and worthy of trial."

Other testimonials are as follows:—

"From P. Nevins, *Gardener to Gov. Bullock, Worcester, Mass.*:—

Gentlemen,—Mr. Keyes gave me three plants of the Prolific Tomato, *two weeks after the Tilden* was set in the ground, and I had large clusters of ripe tomatoes the 16th July, two weeks earlier than the Tilden, of which, at that time, only one ripe tomato could be found on a much larger lot of plants. It does not run to vines as other sorts do, and in flavor it is sugar sweet. It is a great bearer, and the leaves, which have no smell, are very large, 9 inches long, by 7 wide. Respectfully yours,

P. Nevins, *Gardener to Gov. Bullock.*

From Charles Nash, *Worcester, Mass.*:—

Gentlemen,—I think Mr. Keyes' new tomato very well named the "Early Prolific." We had a few plants of it last season. I was at Mr. Keyes' garden, in the fall of 1865, where I saw a little patch of ground literally red with tomatoes. I really think there was not a green one to be seen. They were of good size, and perfectly smooth. I at once exclaimed, Why! what in the world have you here? He replied, by saying that they were a lot of small late plants that *were not set out until the 1st of July.* It then seemed to me more remarkable still. I asked him if I might take one for seed? He said yes. Well, my plants, the last season, were fully up to my expectations; the fruit was larger, owing to the ground being richer. They made quite a show, as many who called to see them can testify. The fruit grows in clusters of 10 to 15 or more, and I think we counted one cluster of 18. Now most tomatoes continue growing and setting new fruit until frost; but the Early Prolific sets its fruit in these large clusters on the main stem, near the root, so that there is a greater uniformity of ripening, and of course matures earlier. In offering to the public an improved variety of a fruit that has become almost one of the necessaries of life, Mr. Keyes must be commended as a public benefactor.

Respectfully yours,

Charles Nash."

It is clear from the above, that the earlier planted ones got stunted by being set too early, and instead of the circumstances favoring the "Keyes'" competitors, they were really favoring that variety. Every farmer knows that he gains nothing by planting his corn until the earth gets warm, and our only surprise is, that gentlemen with a good horticultural reputation, equal to those concerned in this transaction, should so far forget this fact as to be led

into such an error as to recommend a variety on such grounds as these.

We have gone into this matter at length, because we think it a good opportunity to teach wisdom to purchasers of new things. We have often said what we now say, and cautioned the horticultural community; but it is only when a catastrophe occurs that people will really see. It is, therefore, a good time to repeat, that when a new thing is advertised as "better than anything ever known," very much must be allowed for *ignorance;* a little for enthusiasm, and the rest may be of some value. Generally, we think the raisers are honest. It is their want of knowledge, and the purchasers desire to be "ahead," that causes most of the trouble.

The only drawback to a charitable view of the Keyes' Tomato question is the following statement of Mr. Keyes:—

"My trial last year with the Prolific and the Tilden was as follows: Sowed the seed of both at the same time; twice transplanted each, and treated them precisely alike. I had large clusters of the Early Prolific, ripe 30 days before the Tilden had ripened but one tomato. Respectfully yours,

C. A. KEYES."

And to this MR. HOVEY adds:—

"We can only add, that having cultivated this tomato the past year, and carefully watched the growth and ripening of the fruit, we have found it *even more than all Mr. Keyes has stated*, and we have secured the seed in consequence of *our personal* knowledge of its great merits."

It is fair also to add, that one correspondent in Central Pennsylvania speaks warmly in favor of the earliness and productiveness of this variety. We have given some rules for judging of the value of early and late testimony, and now as to the question at issue—the real earliness of the variety, we must let the weight of testimony decide.—ED.]

WINDOW GARDENING.

BY ROBERT SCOTT, PHILADELPHIA.

Read before the Pennsylvania Horticultural Society, August 6, 1867.

There are perhaps few subjects connected with gardening better deserving our attention than the one under consideration to-night, when we consider the almost universal love for flowers, and the desire to have them, however adverse the circumstances attending their management. There is, perhaps, few houses in Philadelphia but have their Pot Plants in every variety of style and position; some in fancy vases and flower-pots, others in broken pitchers or tea-pots, some succeeding, but the most part failing in their cultivation. To foster and encourage their culture, and to lend a helping hand in assisting and diffusing knowledge on this subject, have always seemed to me to deserve more attention than they have hitherto received. There is, perhaps, nothing in nature that tends more to elevate the mind, and bring into play the better feelings of our nature than the love and cultivation of flowers; every seed that vegetates, every leaf that expands, every shoot that develops its leaves, every flower that burst into bloom, awakens interest and leads us from nature up to nature's God.

Who ever saw a cottage window, with its well filled and thriving collection of plants, that its attendants were either lazy or slovenly in their habits. It was the remark of the late B. A. Fahnestock, that whenever he saw carefully cultivated plants in the window, he put down that housekeeper for an industrious, cleanly, and frugal woman; and that he had never known one who was really fond of flowers to be bad or dissipated in her habits.

In treating this subject, I shall endeavor to be brief and to the point, and shall try to answer a few queries asked me perhaps a hundred times in a year; the first generally is, how often shall I water them, what kind of soil should I pot them in, and what temperature is best adapted to keep them in a thriving state.

First, in watering, there is perhaps more blunders made than in any other part of their treatment: the most taking it for granted they should receive water every day, besides having the saucer the pot is set in kept full of water; the consequence is, in a week or two the soil becomes sour, the roots perish, the plants becomes sickly, and finally dies off. In watering, there is no general rule can be laid down how often a plant should be watered, some will want every day, others not for two or three days; some whose drainage is bad, and others who are dormant, may not want above once or twice a week. The temperature of the room has also much to do with the watering: if hot and dry,—some may want oftener than once a day; but never water a plant that is not dry; to know this, you can easily tell by the soil—if dry, water thoroughly, that the soil get wet to the bottom—if in a saucer, empty the drainings out every time you water, as none but water plants stand in it without injury.

In watering hanging baskets, or vases, it is better to take them down and water them well either by a watering-pot, or if very dry, to dip them in a bucket till thoroughly wet through, letting them drip before hanging them up. It is well also to water overhead, at least once a week, to clean off any dust

that may get on the leaves. In watering, use pure hydrant water; in winter, it is better to take the chill off by adding a little hot water, making the temperature about 75 or 80 degrees. Some plants are benefited by Guano and other manures in a liquid state, but requires considerable experience in applying it,—Geraniums, Heliotrope, Mignonette, Stock Gillys, and other soft-wooded plants may receive once a week, a watering from cow or horse manure, steeped two or three days before applying it—use it clear, as any sediment would make the pot unsightly.

In providing soil, where there is only a few pots, it is better to get what is wanted from the nearest florist to suit the kind of plants wanting repotting, but where there is a number, it will be better to have a supply on hand. And I find from every days' experience, that there are great mistakes made in the selection of soil. The first generally made, is to select rich black dirt from the lots, that mixed with street cleanings is the usual mixture in the city for window pot-plants. Now what is taken for rich black dirt, is exhausted soil carted out from some of our city gardens, to be replaced with fresh loam from the commons, this mixed with street cleanings make it worthless for growing anything successfully. The nature of plants, and the food they require, are as various as that of animals, and all pot-plants, whatever their nature, require to be potted in fresh soil. To have this always at hand, have two barrowloads of fresh loam in sods, cut two inches thick, one barrowload of rotten cow or horse manure, one barrowload of bar-sand, and half a barrowload of Jersey peat; these put away in a corner of a cellar, kept separate, will be sufficient for all the mixtures you will want. One composed of three parts of loam, one part of manure, and one of sand will suit for all soft-wooded plants, as Geraniums, Fuchsias, Cinerarias, Calceolarias, Bouvardias, Mignonette, Heliotrope, Lantanas, Verbenas, &c.; for Azaleas, use all peat; for Camellias and Acacias, one-half peat and one-half loam; Daphnes, four parts loam, one of sand, and one of manure; for Hanging Baskets, Ferns, Lycopodiums, &c., three parts peat and one of loam; for Lobelias, Ivys, Vincas, Saxifraga, &c., the soil for soft plants will suit. When a plant wants repotting, turn it carefully out of the pot and see the kind of soil it has been growing in, if lately from the nursery, you will form a pretty correct idea what kind of soil it will want. In repotting, always have the pot perfectly clean, a few pieces of broken pots, or charcoal placed in the bottom to secure a good drainage; one size larger pot as a rule, is sufficient for a shift. If the roots be in a healthy condition, all that will be required will be to take away the old drainage, and repot; be careful that the soil is pressed down all around the ball,—it is best to use a thin piece of wood to make certain of this.

Sometimes in repotting, it is better to overhaul any plant that looks sickly, frequently the cause is found to be insufficient drainage, or the soil exhausted, in that case, it is better to reduce the ball, being careful to save any roots that is fresh, and putting the plant back again into the same sized pot; always water well after repotting, to settle the soil about the roots.

In arranging them for growing in the window, endeavor as much as possible to have them near the light, especially soft-wooded plants. A circular stand about four feet high, having three shelves, is frequently used, and does very well; also, a shelf resting on the sill of the window, supported by brackets, is perhaps the best place where only a few are grown, while hanging baskets, vases, or shells, suspended from the top of the window may be had without interfering with the plants on the shelves. I see some windows through the city literally filled with plants the whole year, either in baskets or vases with their drooping vines or plants standing on the shelves, and have often been surprised to see the health and vigor they were able to keep them in. A bulk-window is also a good place to keep them. I have seen several of them where they were separated from the room by two sash doors to open or shut at pleasure; the bottom of these windows covered by zinc with the edges turned up to gather all drip, and keep up a moisture—a little sand placed on this and the pots set on the sand, with vines running up the sides, and baskets hung from the top. Another method of Window Gardening more practiced in London than Philadelphia, is to have boxes resting on the sill outside and brackets; the box, generally, about 10 inches wide on the top, and 9 inches deep: This filled with good soil, and Mignonette, Sweet Alyssum, Lobelias, Petunias, Heliotropes, and Geraniums planted in it according to their size and growth, will flower and make a fine display all the summer. Others have these boxes filled with flowering plants in pots, and removed as the plants get out of bloom by others to keep up a display the whole season. For Camellias, Daphnes, Acacias, Oranges and Oleanders, another method has been tried successfully; where there is a spare room, to have a large wooden box, according to the number of plants you have to keep over, fixed near the window, make it perfectly tight by cement to prevent any water coming through on the floor; this filled

with tan and pots plunged in it when brought in, in October, there to remain through the winter; they will want very little water, and no heat but what may come from the other rooms. I have known Camellias treated this way very successfully, producing an abundance of flowers during the winter, and supplying the parlor windows with flowering plants.

In selecting a list of plants for the window, I will first name a few which nearly all can grow with a little attention,—Acacias, Armata linearis, and pubescens; Aloe variegata and oblique; Alonsia grandiflora; Azaleas, nearly all the varieties: Cactus; Epiphyllum truncatum, violacea, speciosa, and Ackermania; Cereus speciosissima and flageliformis, Begonia Rex, and others of that class, with variegated foliage; Calla Æthiopica; Geraniums, Rose and Nutmeg, and all the zonale class, now so popular and varied in their colors; Hydrangea hortensis; Primula sinensis, red and white; Mignonette; Myrtle, communis, latifolia and variegata; Nerium; Oleander, White and Double Pink.

For baskets—Ferns; Ficus reptens; Kenilworth, Boston, Irish and English Ivys; Ferns, and most of the varieties of Lysimachia nummilaria; Lycopodiums dentatum and cæsium; Saxifraga sarmentosa; Sedum variegata, Sieboldii, and stolonifera tradescantia, discolor, and Zebrina; Vinca elegantissima, and major; all the above are easy of cultivation, and beginners should select from this class first.

The following are very pretty and suitable for the window; but they require a little more knowledge and experience in their cultivation:—

Ardisia crenulata; Allamanda cathartica and Nerifolia; Bouvardia leiantha, centradenia rosea, and grandiflora; Calceolorias Rugosa, Dan O'Connel and meteor; Camellias Alba Plena, Candidissima, Sarah Frost, Henri Le Favre, Mrs. Cope, Alexina, Sacco, Lady Humes' Blush, Miniata and Dunlap's Imbricata—more might be added, but these are the best. Monthly Carnations; Diffenbachia picta; Dracœna fœrra and Brazeliensis Cinerarias; Daphne odora and rubra; Fuchsias nearly all the varieties; Heliotrope; Catalonian Jasmine; Lantanas Metrosideros, Floribunda, Euphorbia Jacquinæflora; Poinsettia pulcherrima; Justicia carnea and speciosa; Plumbago capensis; Russellia juncea; Vincas alba and rosea.

Additional for baskets,—Achimines picta, grandiflora and patens; Cissus discolor; Manettia, coccinea, Torrenia, Asiatica. I might add many others to this list, but those selected are the best.

GREENHOUSE STRUCTURES--ONCE MORE

BY PETER HENDERSON, SOUTH BERGEN N. J.

I did hope that Mr. Buist's reply to me on this question would have been such as would not further have necessitated a response; but as he defiantly challenges me to verify my statement that there were already half a dozen establishments built on the ridge and furrow style that rivalled his, I have no alternative left but to state where these are, or lay under his imputation that what I stated was not correct. Parsons & Co., and John Henderson & Co., of Flushing, L. I., W. Wilson, of Astoria L. I., Bennett & Davidson, of Flatbush, L. I., Hovey & Co., of Boston, Mass., and his humble servant at South Bergen, N. J., have their greenhouses either entirely or in part on this plan. The three first named have at least twice the extent of glass that Mr. Buist has and none of the others less, and it is believed (but this is only "an assertion"), that at some of these places more Roses can *now* be seen than "Rosedale" has ever produced in a dozen years; in others more Camellias, as one item, than would fill all Mr. Buist's big tables to over-flowing, —yet Roses and Camellias are specialties at Rosedale. Still these establishments are represented by such as have been 'trying' with the ridge and furrow system of greenhouses, in which our Horticultural savant can see no merit. We did not press the advantages of "our plan" on *him* specially, we merely gave him a chance with the others to cut loose from the leading strings of his Edmonston preceptor, but how ill-requited our well meant intentions were evident from the tenor of his reply.

Had Mr. Buist used the space he occupied in your columns in giving his reasons against the system, instead of inveighing against me for presuming to give my opinion of it, some benefit might have been conferred on your young or inexperienced reader, but instead of doing so, in his characteristic style, he contrives to leave the impression that I had laid claim to being its discoverer, while in the very part of the article to which he alludes I state as plainly as words can make it, that to F. L. Perry, of Canandiagua, N. Y., I was indebted for the information that lead to the trial of the valuable improvement, of which my article attempted to give a description. Again, when I corner him about his saying that I had copied the plan from Mr. Bisset and given out as my own, he has the insane audacity to say, in the August No. that he *did not* say so, while his words stand recorded in the printed pages of the May number. And yet he glibly prates of candor and fairness as if he was the embodiment of these qualities.

If there is any benefit to be derived from this controversy it is not to settle the question whether the ridge and furrow system of greenhouse building is new or old. The vital question for your readers to know is whether or not it is one worthy of adoption. Without giving further reasons why we believe so in detail.

We think the broad fact that in the above named six establishments upwards of one hundred thousand dollars has been expended in the past four years in buildings of this style only, is argument enough. The proprietors are all nurserymen or florists of mature experience, but who have had sagacity sufficient not to allow their prejudices to blind their eyes to their interests.

Mr. Buist sums up by saying that visitors at South Bergen and Rosedale will be able to judge whether he or I have "cobbled" to the greatest purpose. I most cheerfully accept the ordeal, and although his has been under way at Rosedale for nearly a quarter of century, while mine at Bergen has not yet been four years, yet I have some satisfaction in believing that for every foot of glass that has been put up after the style at Rosedale, ten has been put up after "our plan." If I am correct in this, it emphatically decides the question.

The Gardener's Monthly.

PHILADELPHIA, SEPTEMBER, 1867.

☞ All Communications for the Editor should be addressed, "Thomas Meehan, Germantown, Philadelphia," and Business Letters directed to "W. G. P. Brinckloe, Box [illegible] Philadelphia."

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COLD GREENHOUSES.

Hovey's Magazine for July, has a well timed article on the above subject, which is one worthy of general attention.

It is well shown how inconvenient it is to the lover of flowers, but with limited means, to get any satisfaction from heated conservatories, for whenever any cheap arrangements to heat such structures are employed, failure is the general result.—The air is too hot or dry, the gas escapes, ventilation is defective, an extra cold night is too much for the fire, besides many other incidents and accidents continually occur to mar success.

Now why not have a cold house which needs no fire, and grow plants which need no heat? You cannot have so much flower to be sure. It takes some heat to bring forth blossoms, but with many things it is astonishing how little is enough. The Crocus, Snowdrop, Hyacinth, Tulip, Jonquil, Narcissus, Scilla, and most of what are called hardy spring flowered Dutch bulbs may be had in February without any other heat than what the simple covering of glass would afford.

But much may be done towards keeping up a show of bloom during part of the winter, by potting hardy, herbaceous and other plants, which naturally flower late, as Chrysanthemums and Michaelmas Asters, Gentians, Hibiscus, Ageratums, Eupatoriums, Rudbeckias, Violets, Pansies, besides many other things. Many things we already grow in pots like Stocks, Wallflowers, Tree Carnation, are tolerable hardy, and there would be no difficulty at all in keeping up a nice show most of the time. There are also many dwarf shrubs which come into bloom with very little heat, and these would soon make the house quite gay, Forsythsia, Deutzia gracilis Mock-orange, Evergreen Candytuft, Spiræs of many varieties, Berberis Darwnii and aquifolia, Double white and pink Almonds and others.

But independently of all these, Ferns, Evergreens and variegated leaf plants afford material for endless interest, and particularly vines, such as Algeri Russian, Irish, Rœgners, English and variegated Ivies, Carolina Jasmines; of the dwarf Evergreens, suited to this project there are now a very large number, and no one will be at a loss for material to choose from.

We do not in short see why a cold house should not be as popular as a drawing or breakfast room. Everybody likes flowers, everybody wants them, and when it becomes known that they can be had, and kept in order with no more trouble or cost than so much parlor furniture, everybody will have them.

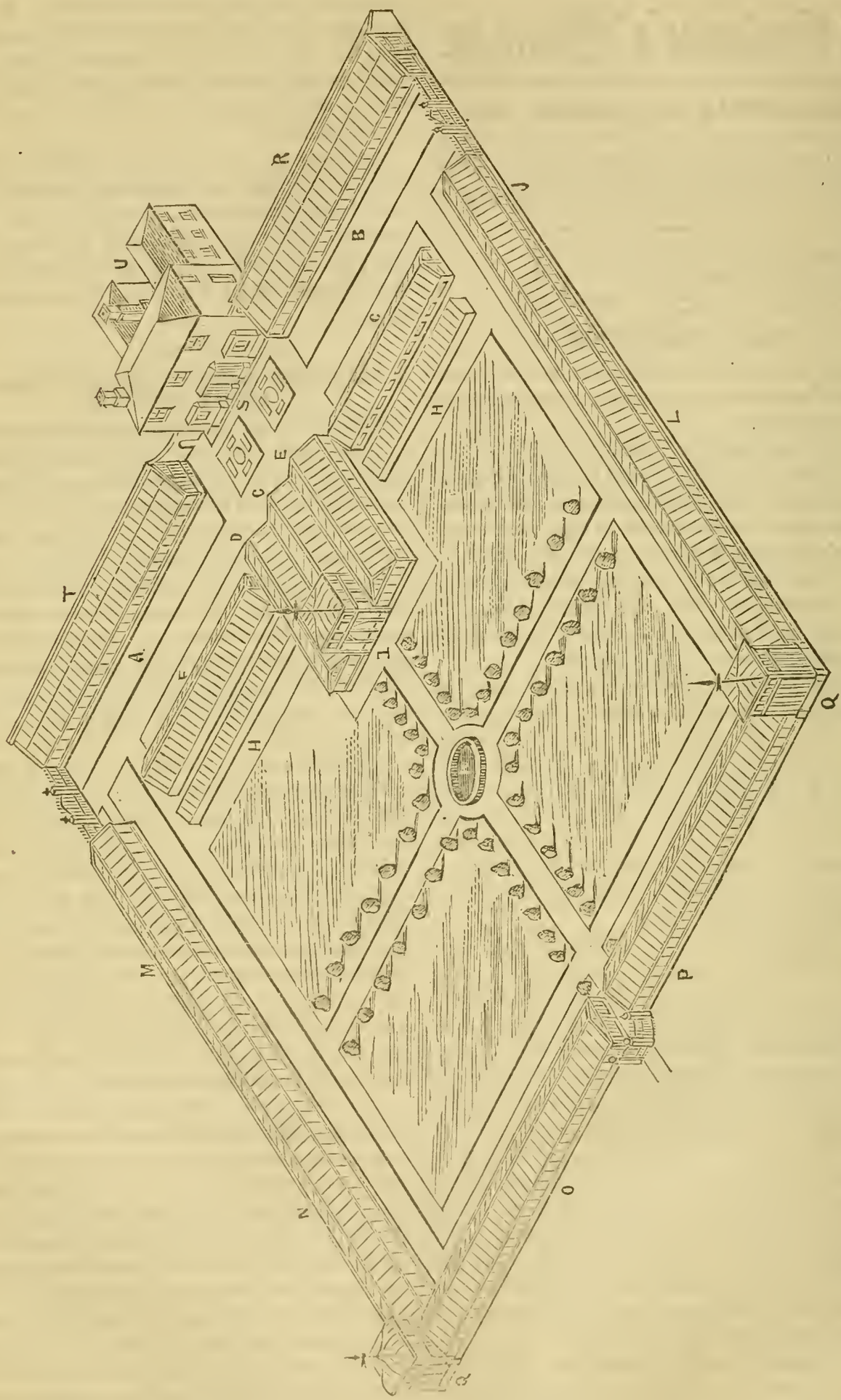
A KITCHEN GARDEN SURROUNDED BY FRUIT HOUSES.

We think it will interest most of our readers to to show them how the English have to raise choice fruit, which we have about us so liberally by open air growth. Their vegetable gardens are usually surrounded by expensive walls, and on this fruits are trained so as to get what additional heat the walls may afford to mature the fruits. The vegetable gardens are also protected from winds and trespassers at the same time. The design we now give is intended to enclose à vegetable garden of two acres with fruit houses instead of a mere wall, and the designer Henry Ormison, thus speaks in reference to it:—

"The proverbial uncertainty of the English climate renders the *growth* of a *supply* of *fruit* for *table* (by the old plan on Open Walls), not only vexatiously uncertain and disappointing, but also, from the frequency of failure, anything but economical. By the removal of the duty from glass and other building materials, and the application of first-class steam power to the operation of Horticultural Buildings, horticulture has received an impetus, and the skill of cultivators and builders been set free to devise the means by which (despite the inclemency of the seasons) a supply of all known fruits may be produced with certainty and economy.

Now it is getting to be a recognized truth that the finest fruits cannot be raised as regularly and well in open air as is desirable in many families, and that we must give more attention to their artificial production under glass, and how to do this cheaply becomes a matter of some moment."

The difficulty with us is that no family here has the large "establishments" to support an aristocratic English family has, and such large houses are not necessary, while the expense of a small place is proportionately larger. In such a plan as the one here given, provision is made, as seen by the refer-



Span-roof Plant Houses with side sashes and Ridge Ventilators.

ences below, for one head gardener and several under ones, under his charge by whom they are directed. In a small place the cheaper labor may be dispensed with, but the skilled head gardener must be retained,—so also in the heating apparatus. In a large place after one large boiler is obtained hot water may be carried to any house, and the expense is only for more pipe, but in a small place expensive boilers and apparatus must also be had for very little work to be done with them.

Some few people here get over the difficulty by getting large establishments, and the best skill, trusting to "market" the overstock not required by their own family; but aside from the natural feeling a man of refined taste has against making a profit of his pleasures, it does not seem to work well in practice, for we have never known but few American gentlemen who did not abandon the selling system after a few year trial.

It is evident that these houses are a great want with us, and yet that they have not been presented in proper shape, so as to meet with general adoption. We have thought by introducing the subject in this form it may meet with thoughts from our intelligent gardeners, and some good grow out of it.

The following are the references to the plan:—

Description of Plan. A. 1st and 2d Peach Houses and Early Fig House. B. 1st, 2d, 3d, Vineries. C. Fernery. D. Stove. E. Orchid house. F. Pine Pits. G. Cucumber and Melon Pits. H H Vegetable or plant pits. I. Orangery. J. Late Vinery. K. Water tank. L. Plum house. M. Plant Houses. N. Choice Dessert Pear house. O. Peach and Nectarine house. P. Apricot and Cherry house. Q Q. Late Fig houses. R. Tool and Potting houses, &c. S. Head Gardener's house. T. Mushroom house, Vegetable and Fruit store. U. Under gardeners' Rooms, Offices, Fuel store, and Boiler house.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Communications.—We have many excellent articles from friends on hand, which, as we sent our matter to press a little earlier than usual this month, we hold over for next number.

Return of Mr. Wilder.—We are pleased to learn, from a note from Mr. Wilder, that he and Mr. Barry have enjoyed themselves remarkably well at Paris. Both, with Mr. Thompson, have been engaged amongst the judges in the Pomological department. They proposed to leave Paris on the 17th of August, so as to be in time for the Meeting at St. Louis.

Death of W. N. White.—This distinguished Southern Horticulturist died, recently, at Athens, Georgia, in his 48th year. Mr. W. was wellk-nown as the author of "*Gardening for the South.*"—the only literary production, we believe, of Southern Horticulturists, and an excellent work. He was, also, Editor of the *Southern Cultivator*, the only Southern (Agricultural) journal which survived through the war,—a fact which, alone, showed the estimation in which he was held, for only the really useful could exist in such a storm.

Mr. W. was, we believe, an Englishman by birth, but no one born on the soil had more dearly to heart what he conscientiously believed to be the interests of his country than he; and the South has lost, in him, a true citizen; and Horticulturists, North and South, an esteemed and valuable associate.

Golden Dwarf Peach.—*W. J. R., Monmouth, Ill.*—"My object in writing to you is to ascertain whether the Golden Dwarf Peach is an *acquisition* or a humbug. I understand that Messrs. Miller & Co., advertised it in your *Monthly*. Are they reliable men? Have you seen parties who have it in bearing? I have only just seen your *Monthly* for the first time, and am not posted up."

[For those who want a *dwarf Peach*—that is, one growing naturally but a few feet high, and bearing fruit in proportion to its size, and of a good average qualityas any other Peach—Van Buren's Golden Dwarf is "no humbug," but a real, genuine article. Its dwarfness is its only merit.]

Forest Trees in Michigan.—Messrs. T. T. Lyon and Sanford Howard have memorialized the Legislature of Michigan in reference to the encouragement of Forest tree raising in that State. Their petition was referred to a committee, consisting of the Hons. R. C. Kedgie, J. J. Woodman, and O. H. Fellows, who made a very interesting report in favor of the views of the memorialists, showing the incalculable advantage to a State of its Forest tree interest, and to Michigan in particular, and recommending the State to grant special privileges to

those farmers who will plant trees along their highways.

Drip in Curvilinear Greenhouses.—*A New York correspondent* says:—I am under the necessity of doing something to the roof of my greenhouse, which has always leaked dismally. It was erected in 1863, by an eminent person on whom I relied for a good house, but the result was a veritable bungle.

The roof is curvilinear, (lean-to.) The upper half of the roof has not pitch enough, and the whole of the glass has been laid on with the *least possible overlap*. The result is, that during rain, a large quantity is admitted, and drops down on the plants, &c. It is much worse near the roof where the glass is so flat.

I propose removing the glass on the roof and relaying it with sufficient lap, unless any other plan can be adopted less laborious and equally effective. I have thought of closing the openings with Hilton's Insoluble Cement. Do you think that would answer?

I have no faith in any plan but relaying the glass. How much lap do you think is ample to check the admission of water? Does it answer to close the lap over with the cement named? What would tend to check the escape of heat during severe frost—a most desirable consummation in my case—not having enough in the hardest frosts. The benefit of your opinion on these matters will oblige your correspondent.

[If the laps are made tight with already not enough heat in the house, we should fear moisture would condense, freeze, and, in thawing, "drip" worse than ever. If broad laps are made in a flat house, moisture will collect under the lap, freeze, and crack the glass. Our correspondent is in a bad way. If any of our readers can help him, we shall be glad to have their experience. We have always opposed curvilinear houses for our climate. They look pretty, but are not "practical."]

Names of Plants.—*Subscriber, Elmira, N. Y.*—The Pea flower is *Lathyrus grandiflorus*, or Everlasting Pea; the other, *Calystegia pubescens*, the Double Chinese Morning Glory.

Roses in a Cold Greenhouse.—*Anxious Inquirer, New London, Conn.*—I have a well glazed house in a sheltered, sunny position, with a deep rich border, in which I design to set out tender roses. Will they live through the winter without fire heat? (1) Will it be necessary for this purpose to cover them with leaves or with earth? (2)

[(1) Yes. (2) We have seen roses, during the past year, of the most tender kinds, in pots, kept in a house where there was no fire, without any material injury; and we judge from this that, in the earth, they would do still better. We saw Violets, and other such hardy things in the same house, and noticed the leaves, in places exposed to the sun, were a little injured,—showing shade to be good under such circumstances. A covering of leaves or anything we should hardly deem necessary.]

Grass Under Trees.—*Anxious Inquirer, New London, Connecticut.*—Is there any grass or *green moss* that will thrive in the shade of low, drooping Elms in good soil? Our magnificent Elms have this drawback, that (where they grow low and drooping) they suffocate ordinary grass in spite of all possible care.

[Several Hypnums,—a shade loving genus of Mosses,—will live under trees, and make a nice green carpet *after every good rain*; but it would be brown in dry weather. It would be best, perhaps, to plant with Ivy or Periwinkle, which will do well.]

Letter from Mr. Hacker.—*Philadelphia, July* 23, 1867. Dear Sir:—I send, same mail, a sample copy of the new Illustrated Monthly, the "American Journal of Horticulture," with which I hope you will be so well pleased as not only to subscribe for it yourself, but use your influence to induce others to subscribe also. It is the intention of the Editors and Publishers to make it a Magazine which shall be of interest and value in any part of the country. Practical correspondents have been engaged, from all sections, to give the benefit of their experience, and everything will be done to make it what its title indicates,—the "American Journal of Horticulture."

The subscription price is fixed at $3 per annum, so that it is within the reach of all. The value of the contributions and its fine typographical execution should command a large circulation, and, I hope you will lend your influence to the enterprise.

I send, herewith, my Catalogue, to which the attention of the trade is solicited.

Very truly, yours, William Hacker,
Wholesale Seed Merchant, Market St., Phila.

[In reply to the above note of Mr. Hacker's, we may say, that our name is already on the books of the A. J. H., and that we have already used, and shall continue to use our influence to extend the circulation of the magazine. There is abundant room

for all, and we sincerely wish well to the enterprise.

This note of Mr. Hacker's, however, has some peculiarities. We are very familiar with Mr. Hacker's style and hand-writing, and neither of them are in the letter before us. The substitution of "Dear Sir" for the usual "Respected Friend," is not either characteristic of Mr. Hacker,—and the signature is not that of Wm. Hacker. Mr. Hacker, we well know, is too honorable a man to *sell to another* the privilege of using him in such a manner as this; and we are, therefore, compelled to believe that he will thank us for thus calling attention to the unwarrantable use of his name.]

Books, Catalogues, &c.

VINEYARD CULTURE.—Improved and cheapened by A. Du Breuil. Translated by E. & C. Parker, of Longworth's Wine House, with notes and adaptations to American Culture, by John A. Warder. Cincinnati: Robert Clark & Co., Publishers.

M. Du Breuil has a world-wide reputation as a French Horticultural writer of eminence. His great work "*Cours elementaire Theorique et pratique d'Arboriculture*," has been through five editions; and his "*Instruction elementaire sur la conduite des arbore fruitiers*," first published in 1857, is looked on, in France, as a standard work. He is, however, by no means a philosophic writer. He is rather a laborious compiler of the practice of others,—something of a Loudon amongst Frenchmen—one whom it is a pleasure to go to when we want to learn what are the prevalent practices and theories,—but an unsafe guide when we would understand the highest intellectual capacities of the art.

We often hear tell of persons riding hobbies, and in mounting the present young colt of Du Breuil and trotting him out on the American race-course, Dr. Warder has only done so at the risk of breaking his neck. It is not a good looking animal,—the most desperate gambler would not stake much on him,—and most American spectators would wonder how the Doctor undertook to manage such a "critter." But it is evidently a case of *malade d'amour*. The Doctor is in love with *viticulture*, and what will not a man dare when the tender passion goads him! There is scarcely a step taken that does not exhibit a restlessness which proves irksome to the rider,—but by a liberal use of "notes," and most skilful horsemanship, the "breaks" have all been corrected in season, the animal brought to, and we find the fearless rider coming in up to, at least, if not a little ahead of time. If Miss Viticulture does not now place her hand and heart at the Doctor's disposal, no novel writer ever did justice to a good story.

Really, if we were to take this work of De Breuil's as a guide to the present state of Vegetable Physiology and practical Vine-culture in France, we should have vanity enough to believe what Americans are often charged with: thinking they are a little ahead of all creation; but we rather think that De Breuil is himself a little behind the enlightened Horticulturists of France. Certainly, so near a country where glass houses are used expressly to make a moist atmosphere before the grape can be successfully grown, no enlightened Frenchman would teach, as this author does, that a dry atmosphere is a necessity, and a moist one fatal to the success of grape culture. Americans, too, who have learned the value of proximity to large bodies of water in vineyard culture, would know better than this.

He knows nothing of hygrometrical conditions,—latitude, conjoined with height above the level of the sea, is the all-in-all of locality with him. He says, evergreen screens favor white frosts and retards ripening of the grapes. Leaves must be pulled off plentifully at different times through the season, in order to "ripen the wood." Under-draining to take take away stagnant moisture is very briefly alluded to, but the writer is, evidently, ignorant of how to keep soils moist in summer; and he has no better plan to give by which vines may be preserved from droughts than the ploughing and cutting away of surface roots, so as to force out deep ones into the subsoil below; and yet we find the contradictory advice in another portion of the book that, in cold soils, the ground should not be trenched more than twelve inches. We should think cutting off the surface roots to drive roots down into a cold subsoil, would indicate that the looser such soil the better they would go down.

However, the American reader will not suffer by these heresies, for Dr. Warder is continually correcting them, and adding to the text very much of interest, suggested, but not referred to, by the author; and thus, together, it makes a very valuable work; for there are a great many practical suggestions which, with a little Yankeeizing, will prove of great value to our grape growers.

In another way, also, this work will have an excellent result. It is evident from this book that European grape growing is nearly as risky a busi-

ness as it is with us. It is only where laborious, plodding watchfulness is given to the crop that it pays much. We are told that in some parts of France where the wages of labor have risen a little, it scarcely pays; and yet here, wherere it is supposed we have so many risks to run, and labor is so much better paid, grape growing has not, on the whole, proved more uncertain than most other fruit crops. This is, no doubt, owing to the greater intelligence of our grape growers and grape writers, well exemplified in both author and editor of this book. While the one writes of "Spider-shaped Beetles," "May beetles," "Blue Beetles of Dunal," no one outside of his limited circle knowing what he means —the American Editor recognizes that he has a more scientific class to deal with, and properly tells you that his grape vine Beetle is *Haltica chalybea*, or the Rose Beetle is *Macradactylus subspinosa*, and so on.

No one can rise from this work without feeling great respect for American grape knowledge, and will heartily thank Dr. Warder for the share he has taken in making this knowledge respectable. It would be well worth re-translating into French in the shape Warder has put it.

New and Rare Plants.

CRATÆGUS OXYACANTHA COCCINEA FLORE-PLENO (New Double-blossomed Crimson Thorn).—"As a hardy ornamental tree for planting in the shrubbery and flower garden, we look upon this Thorn as the grandest acquisition that has been obtained for many years; and as a forcing plant it is equally desirable, for the young plants appear to flower freely when only a few inches high. This, indeed, has been sufficiently shown by the examples which have been exhibited by Mr. W. Paul at the Royal Horticultural Garden, South Kensington, and at the Royal Botanic Garden, Regent's Park, several times during the spring of the present year.

As there has been some doubt created in the mind of the public as to whether there are not two new double Crimson Thorns, issuing from different establishments, under similar names, we are glad to be able to dispel the mystery. We speak advisedly when we say that the plants shown by Mr. William Paul, and the branches shown by Messrs. George Paul & Son, are identical both in leaf and flowers. The variety is a sport from the double Pink Thorn, and originated in the beautiful and well kept garden of Christopher Boyd, Esq., of Cheshunt St., near Waltham Cross, where it still exists. It has, therefore, never been the exclusive property of any one nurseryman.

The history of the sport is briefly this: About seven or eight years ago some flowers of this intense hue were observed on a plant of the double Pink Thorn, and, on examination, it was found that a strong branch had started up from near the centre of the tree, with leaves as well as flowers differing from its parent. The branch was encouraged, and year by year, increased in size, retaining the color and character originally observed. The parent plant is, apparently, about 25 years old, 30 ft. high, and as much in diameter, measured from the outermost branches at its greatest width. There is still only one stout central branch of this deep color; the other branches, which are profusely adorned with flowers, being of the original pale pink so well known to horticulturists. When looking at the tree recently, so great was the contrast between the sport and the original, that we could not rid ourselves of the impression that the parent variety was in this instance, paler than usual; and we asked ourselves whether the coloring matter had not been drawn from the larger surface and intensified in this particular branch by one of those secret processes which the student of Nature is often called upon to behold and wonder at, without being able to account for or explain. This may be fanciful, but here is certainly a *lusus naturæ* worthy of the attentive consideration of our vegetable physiologists.

We do not hesitate to advise every one who has a garden, to purchase this plant at once.—*Florist and Pomologist.*

DALECHAMPIA ROEZLIANA, var. ROSEA, *Mull. Arg.; D. C. Prod.*, vol. xv., sect. posterior., fasc. 2. p. 1233.

[Our readers are familiar with the *Poinsetta pulcherrima*, one of the most beautiful winter ornaments of our hot houses. This new plant is closely allied to this, and as it probably may become as popular as the Poinsetta; when introduced to the United States, we give the *Gardener's Chronicle* account in full.—ED. *G. M.*]

"Numerous specimens of this very pretty plant were exhibited by Mr. Bull, of the King's Road, Chelsea, at the last Tuesday meeting of the Horticultural Society, where they, deservedly, attracted great attention. The plant was, we believe, in the first instance, detected by Roezl, in the province of Vera Cruz, Mexico, and living specimens of the rosy variety, as well as of the green-bracted kind, were sent to M. Ortgies, and by him communicated

to M. Van Houtte, and other continental horticulturists. Mr. Bull is, if we mistake not, the first among our British exhibitors to show the plant.

Before giving a description of this novelty, it may be as well to say a few words relating to its botanical history, as it is one which would be very likely to perplex a student into whose hands it fell. The vast order Euphorbiaceæ, according to the most recent revision of M. Muller, in the "Prodromus," is first of all divided into two series,—the one in which the cotyledons or seed leaves are narrow; the other in which these organs are broad. This latter series, to which our present plant belongs, is subdivided into nine tribes, according to the number of ovules in each compartment of the ovary, the way in which the parts of the flower are folded, and other minor points. Thus the tribe Dalechampiæ may be easily recognized by the presence of a single ovule in each compartment, by the anthers being erect in the bud, by the segments of the calyx in the male flowers touching by their margins, (valvate,) and by the two leaved involucre enclosing flowers of both sexes. As there happens to be only one genus in the tribe, the characters of the tribe serve also for the genus.

Most of the species have palmate leaves, which, together with the large leafy bracts, produce a great resemblance to the Mallows, so that, on a first glance, were it not for the climbing habit which most of them have, they might be mistaken for some Gossypium. Of course the slightest examination would suffice to dissipate this superficial impression, though there are points of resemblance also in the flower.

The species before us differs from the great majority of its congeners in its erect, not climbing stem, and in its undivided leaves. It is an erect, low-growing perennial or under shrub, with broad, leafy, egg-shaped stipules. The leaves are 5 to 9 inches long, 1 to 3 inches wide at the widest portion, are very shortly stalked, sub-cordate, obovate or spoon-shaped, tapering towards the base, acuminate at the apex, and smooth, or nearly so, on both surfaces. The peduncles are slender, thread-like, angular, slightly downy stalks, 2 to 3 inches long; they bear at the top, two small, ovate bracts placed at the base of two large, broadly egg-shaped, acuminate, denticulate, rosy-pink, floral leaves. Within these two latter are other smaller bracts placed around and among the male and female flowers, some of them thick and club shaped, and bearing at the top a fringe of short, yellow, waxy-looking threads, which gave a singular appearance to the blossoms. These filaments have been regarded as abortive flowers or anthers by Muller, while Baillon considers them to be modified bracts. The male flowers have a 4–5 leaved calyx, inclosing a number of stamens united into a column, as in Mallows. The female flowers have a similar calyx, and a 3–4 celled ovary, surmounted by an equal number of confluent styles.

The large, rosy bracts recall those of Bouganvillea, and will render the plant acceptable in our stoves, and specially in bouquets and for purposes of table decoration.

We are informed by Mr. Bull that the Dalechampia blooms so freely, that plants a few inches in height are now full of flower. Moreover, it seems to produce its flowers throughout the year, while the individual blossoms retain their beauty for several weeks, owing to the persistent nature of the colored bracts.—*M. T. M.*

Keteleeria, a new genus of Coniferæ.—In the *Revue Horticole*, M. Carrière has shown that the plant called Abies Jezoensis by Lindley, and Abies Fortunei by A. Murray, is not the Abies Jezoensis of Siebold and Zuccarini, nor an Abies at all; but a new genus, which he has named Keteleeria, in honor of M. Ketelcer, the eminent nurseryman of Paris. The name M. Carrière proposes is Keteleeria Fortunei, and it is distinguished from Abies and Picea in having the erect cones of the latter and the persistent scales of the former.

The *Illustration Horticole* figures the following:

Alnus Aurea (the Golden Alder Tree).—This will be one of the finest trees. It is the common Alnus, with splendid golden leaves.

Tea Rose Isabella Sprunt.—One of the best Tea Roses sent out.

Pear Beurre de Fromentel.—One of the best Pears sent out. This fine Pear obtained several Prizes.

New Sweet-scented Violet, King of Violets is advertised in London by E. G. Henderson & Son. Its style and constancy of growth has been proved as a seedling, by six successive seasons of culture. The flowers are very double, and rosette-like in form, 1¼ to, occasionally, 1½ inch in width, delightfully fragrant, and, in some soils, are casually striped with white. The growth is dwarf and compact, not liable to exuberant leaf-growth as in the single-flowered forms of its tribe. In color it approaches the rich indigo blue of the well-known Tree Violet, but its individual blossoms are double the average size

of that variety, and it surpasses all other known kinds by its neatness in growth, combined with profusion and size of flowers, grateful odor, and long-continued succession of bloom.

Weigelia Purpurata.—One of the most distinct varieties obtained; the blooms are large, purplish red, and of much effect.

Gynerium Argenteum foliis variegatis.—A true variegated Gynerium, which is the good variety sent out by Mr. Rendatler.

Domestic Intelligence.

Large Asparagus.—At the Exhibition in the New Hall of the Pennsylvania Horticultural Society, Mr. Mack exhibited 6 stalks of Asparagus, in prime condition for the table, which weighed *six and one quarter lbs.* Can this be beat?

Large Apple Tree.—In July, 1865, we took the measure of an apple tree on our father's old homestead, one half mile south-east of Jefferson Furnace. The seed was planted there about forty years ago. The tree forked three feet above the ground. Just below the fork it measured nine feet eight inches in circumference, and the branches spread from north to south fifty-four feet seven inches, and from east to west fifty-two feet five inches. The fruit is small and tasteless, and unfit for use.—*Jackson Standard.*

Composition of Marl. — This remarkable mineral is found throughout a belt of country in New Jersey, stretching obliquely across the State from Sandy Hook to Salem. Its length is about ninety miles, and at its Eastern extremity it extends in breadth over fourteen, and at its South Western termination over about six miles. Its area is about nine hundred square miles; and as its benefits are shared by a district extending much beyond its borders, the area benefited by its application to the soil is much greater than the above named amount. To the extensive use of this valuable fertilizer much of the progress of New Jersey is to be attributed, both directly as the material from which increased productiveness has resulted, and indirectly as the cause of renewed enterprise and in awakening and fostering a highly commendable spirit of agricultural improvement.

The composition of this mineral has been frequently determined by chemists, but its origin has not been clearly comprehended by the geologist until quite recently. Composed of distinct green colored grains, which, when freshly dug are so soft as to be easily crushed by the nail, and which present under the microscope not the angular forms of sand, but a uniformly rounded outline, and of a chemical composition quite complex, it bears no resemblance to a true sand in any particular, except in its granular appearance; and differs still more from the material of other geological formations; while from its position and the remains of shell-fish, sea turtle, and corallines, and similar relics, its origin is unquestionably marine.

Late researches have led to the interesting and satisfactory conclusion that this deposit of green grains, vast as it is, is but a bed or beds of minute sea organisms, still found living along the coast of the State, at the bottoms of our bays and inlets, as well as at the greater depths in the open ocean. A remarkable change has, however, come over the original animal or its envelope, and in the green sand these minute creatures occur as fossils.

Ehrenberg, a distinguished microscopist of Germany, was the first to point out, in 1854, (from a specimen of green sand obtained in Alabama), that these grains had resulted from the alteration of the minute shells of marine animals known to the naturalist as Rhizopods. These many-chambered shells, sometimes known as Foraminifera, or pore-bearers, in allusion to the numerous minute perforations in their shells through which protrude long delicate threads, like the tender rootlets of plants, which again has caused the name of Rhizopods, or root-footed, to be given to them—have become filled by a kind of petrifactive process with solid matter derived from the sea. Our readers will not be alarmed at the high sounding pretentious names, nor be deterred from reading our paper because these words sound like Greek to them. Rizd means root, in the Greek, and pous a foot, poudos of a foot, and the compound is an excellent handle for the tiny creatures, though it must be learned by the English student, and does sound strangely. Such terms often repel the reader, but they ought to incite him to learn their origin and meaning, which would increase his interests in the inquiry, while it forms an excellent discipline.*

The observation of Ehrenberg was soon afterwards corroborated by the late J. W. Bailey, an eminent

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* Note.—The "Comprehensive Medical Dictionary" of that learned philologist, Dr. Joseph Thomas, of Philadelphia, is an excellent book to have at one's side when reading, as it contains the pronunciation, etymology and signification of the terms made use of in medicine and the kindred sciences, in a most happy manner.

American microscopist, the founder of this branch of research in this country. His delight, from a boy, was to examine every minute organization in stagnant waters, mud and fossil deposits, in guano, or wherever they may be found, which is indeed almost everywhere around us. So ardent was he in his enquiries that he made for himself globules of glass for magnifying lenses, and with these made his earliest researches. He made many valuable contributions to science, demonstrated the vegetable nature of anthracite coal, showed that by examining the mud brought up by the sounding lead, that it might be possible to determine in many instances a ship's place in fogs and darkness, and made many investigations into the origin of our green sand. He found upon examining specimens from many localities, not only the altered shells of the minute Rhizopods, but also their unaltered shells in the green sand of Mullica Hill, Timber Creek, and at Mount Holly in New Jersey; but in marl, properly so-called, from Virginia, South Carolina and Tennessee, as well as from the limestone and other rocks containing green sand from North and South Carolina, Alabama and Texas.

Thus this substance which occurs over vast areas in Europe as well as in this country—though not always as available as is the New Jersey deposit—has been produced by the individual alteration of minute shells at the bottom of the ocean. All doubt as to the nature of this substance under notice must be removed when we state that the process of converting these shells into grains of green sand is now going on, and a bed of this substance is in course of formation off our Southern coast. But we must reserve for another paper the interesting evidence to be adduced from the Report of the United States Coast Survey of 1858.—J. S. Lippincott, *in the Farm and Fireside.*

Sulzer's Method of Propagating Roses.—Propagating the rose by cuttings is our hobby, and one which we ride quite successfully; we prefer a hot bed-frame for striking cuttings, to any other method; prepare your frame in an open, airy situation, in the best manner, using fresh, fermented horse manure, which place evenly from 12 to 18 inches deep, and tread it slightly to prevent its settling unevenly, on which place your frame; fill in a layer of good compost about two inches deep, upon which put sand of a suitable depth. The best cuttings are those selected from the plants called blind shoots, (i. e., such shoots as produce no flower-buds); prepare your cuttings in lengths of two or three eyes each; cut off square at the lower joint, and trim off all the foliage except the upper pair of leaflets; insert in the frame and when the frame is filled, give a gentle watering; place your sash, and shade the glass from the direct rays of the sun for the first ten or twelve days—to be successful, it is absolutely necessary to retain the foliage—by which time they will be well calloused and commence pushing out roots, they should be gradually inured to the full light of the sun by the time they are well rooted, which will be in from 15 to 20 days from the time they were put in, and will be ready to transfer to pots. Roses can be propagated by cuttings in spring from plants grown in the greenhouse in the months of April and May, or in the Fall from plants grown in the open air. September and October is the best time in the Fall; the nights then being cool, the sash can be taken off in order that the cuttings may receive the benefit of the night dew.—*Essay before Chicago Horticultural Society, reported in Prairie Farmer.*

The Cotton and Boll Worm in Louisiana.—Allow me to call your attention to the destruction of the cotton crop by the worms, which appear to increase yearly. In 1864, I planted about one hundred acres in cotton. In July the worms made their appearance. Having no experience in raising this crop, I searched in the agricultural reports for information. Mr. Glover recommended the burning of trap lanterns, and I made three of them with a coal-oil lamp and tin basin, with soapsuds underneath, and burned them every night. The first night I caught about seventy-five millers and innumerable other insects. The number increased to three hundred millers, and then gradually diminished to none. For three weeks after the crops of my neighbors were destroyed, I found only a few of my plants attacked; about the last week of the three I caught no millers, but all at once the catch was seventy-five, next night one hundred and fifty, then three hundred, and even up to five hundred. The worm, however, gradually made its appearance more and more, until in the middle of August my cotton was stripped of every leaf and bloom. The worm then turned in pupa. In ten days after this the miller again appeared. Meanwhile the cotton had sprouted again, and was in full bloom when the third brood made its appearance in immense numbers. In three days every leaf and young boll was eaten, and the worm was eating the bark of the plant and the glazed protection of the nearly-matured bolls. The heavy rains of September soaked into the bolls and rotted them. I made only three bales of cotton. In July the prospect was good for at

least seventy-five bales. My opinion is, that if every planter would commence burning a lantern in each five acres, from the latter part of June to the middle of September for a few years in succession, both the boll and cotton worm would be destroyed. The boll worm destroys about one-half the crop with us. This year none of my neighbors raise cotton. I have planted about five acres, and shall burn one lamp and inform the department of the result.—*Correspondent of Journal of Department of Agriculture.*

Curculio and Gas Tar.—A correspondent of the *Wisconsin Farmer*, alluding to a paragraph going "the rounds of the Press," that corn-cobs dipped in Gas Tar, and hung about through the branches will keep away Curculio, says, "that experience shows it to be no preventive." He is right. It has been tried over and over again. The smell of Gas Tar is not offensive to his nostrils. He walks right over the dried tar, and laughs at the experimenter.—Something better than this must win the $10,000 offer.

Dr. Hull's Orchard at Alton, Illinois.—A Committee of the Alton Horticultural Society reports as follows, which we extract from the "*Rural World*:"

"That they find on the farm of Dr. E. S. Hull, a great variety of orchard fruits, comprising 1,500 peach trees, 50 nectarine, 200 plum, 100 cherry, 200 pear, and 450 apple, besides a few apricot and quince. Most of these were planted on newly cleared land, in the spring of 1859, or eight years since. Special attention was given to planting, the holes being dug very deep and wide. The result was unusual vigor, beauty, productiveness, and exemption from diseases, especially in the stone fruits. The peach trees in 1863 were the finest we ever saw, and produced the finest specimens of fruit. The cold weather of January 1, 1864, however, injured them greatly, and owing, your committee think, to a lack of thorough cultivation, and moderate shortening in, during the following summer, they did not speedily recover.

With this exception, the cultivation of all orchard fruits appears to have been thorough and sufficient.

In pruning, your committee believe Dr. Hull has trimmed up his apple trees too much in the first setting, inducing disease in the exposed and unshaded trunk. His method of pruning the peach, in such manner as to obviate the necessity of shortening in, to thin the fruit, encourage the growth of young wood, and avoid the common error of cutting out the leader, your committee think worthy of careful study and general imitation. It may be questionable, perhaps, whether Dr. Hull has not carried the practice too far; but of the truth of his theory there can be but little doubt.

In this connection, the thinning of fruit spurs on the cherry trees is also of interest and value. It is claimed by Dr. Hull and others, that blooming is one of the exhausting functions of fruit trees, and that by thinning the spurs previous to the time of blooming, we both thin the fruit and avoid exhaustion. Others state that the process of seed-formation is the one most injurious to the tree. This raises the question, How exhausting, absolutely and comparatively are the functions of bud-formation, blooming and fruiting to the tree? a question to which there has not been given, your committee believe, a quite satisfactory answer.

Dr. Hull's root pruning of the pear, as a preventive of blight and inducement to early fruitfulness, is still successful, and is worthy of trial by all our members. Nothing seen by your committee this year, compares favorably with the show of pears in this orchard."

The Jersey Peach Crop.—At Clinton, eight miles beyond, are something like 250 acres; but several large orchards are in a declining condition, and the total yield will be about the same as at White House. Around Flemington, the county seat, the number of acres is equal to those of the two other places. Here are many fine orchards, the cultivation is thorough, and the yield may be put at about seventy thousand baskets. On the line of the Camden and Amboy Railroad is an extensive peach region, but as it has been longer planted many of the trees are about done bearing, and generally, orchards are on the decline. From estimates, based on inquiry, the yield there is not likely to exceed, if it equals the Hunterdon region. Add to this the peaches from a few other localities, a few of which are up the Hudson, the Jersey peach crop may be set down at about 200,000 baskets. The general estimate among growers is, that there is only about half a full crop. In June, the cold wet weather caused the curl of the leaf, and a fall of large quantities of peaches.

The best peach orchards in Jersey are put in corn till they begin to bear; after that, they are plowed and harrowed without the planting of any crop, and bone-dust applied, in one instance at the rate of four tons to 25 acres. Some say it is better than any other manure, while others deny this, and say they use the bone that they may have their manure to

put on ground for wheat. When cultivation is not attended to, and where a system of trimming out dead wood is not pursued, the yield of fruit is unsatisfactory, and the business unprofitable. The varieties raised are generally as follows:—Early red (Troth of the West); Honest John, which we suppose is the Large Early York; Old Mixon, Late Rare Ripe, Late Crawford, Prince's Rare Ripe, Smock, Morris White and Beer's Smock. This last is an October peach, and is highly valued.—*N. Y. Tribune.*

A Monster Cherry Tree.—Some time since we published an account of a very large cherry tree growing in this State. A friend furnishes us with a statement of the dimensions of one growing on the farm of John Ansfachs, in Reading Township, Perry County, Ohio, which makes the first appear a mere switch. It is of the Black Heart variety. It is 80 feet in height, and 4 feet 1 inch through. The largest limb is 42 feet in length. The seed of this tree was brought from Berks County, Pa., in the year 1817.—*Ohio Statesman.*

The Apple in North Carolina.—I think I have an opportunity of knowing, and must express it as my honest conviction, that Western North Carolina can beat any other section of the Union in the production of apples of first quality. I have seen apples grow in the North and Northwest equal in size, but not in quality, to those we produce. Our apple crop is seldom affected by disease, though Jack Frost sometimes *disgruntles us.* I do not know what an acre of orchard would yield. My nearest neighbor measured 75 bushels of marketable fruit, picked from a single tree last season. I suppose the whole product of the tree was about 100 bushels—some 20 or 25 bushels having been lost. But this is rather an extraordinary yield—*Country Gentleman.*

Origin of the name "Scuppernong Grape."—This grape and wine had the name of Scuppernong given to them by Henderson and myself, in compliment to James Blount, of Scuppernong, who first diffused a general knowledge of it in several well-written communications in our paper, and it is cultivated with more success on that river, than in any other part of the State perhaps, except on the Island of Roanoke.—Calvin Jones, *in Southern Planter.*

Foreign Intelligence.

The Phlox.—The lovely flowers of herbaceous phloxes are distinct from those of all other plants of similar habit in their exquisite symmetry of of form and delicacy of coloring. They are for the most part very hardy, though judicious cultivators do not leave their collections entirely to the mercy of the weather all winter. We do not see phloxes as often as we should; amateurs are so crazy about geraniums and vebenas, which many of them cannot manage in a way to be thoroughly satisfactory, that their minds are drawn away from such a subject as the phlox, which is hardy, requires very little attention, and never fails to make an ample return for whatever trouble is bestowed upon it. To grow phloxes, you need a mellow, deeply-stirred, and well-manured loam, and a sunny position. The plants should be set out one foot to eighteen inches apart, according to their height and robustness of habits all the taller kinds requiring more room than the dwarfs.

To propagate them is the most easy. The best plants are those propagated from cuttings in March or April, but strong stools may be divided in April or May, and if planted again with care will flower well. Plants that have survived the winter in the ground, or that have been kept in pots, begin to grow in March. The shoots should be cut away when an inch to two inches long, one or two of the lowest leaves removed, and be dibbled in close together in pans or pots, filled with any light sandy soil. A mixture of sand and peat is the best, but it does not greatly matter what it is, if clean and sandy. These cuttings soon root if shut up close in a frame, and kept regularly sprinkled and shaded. The shortest mode of disposing of them is to allow them to grow in pans till they are three or four inches high, and then to plant them where they are to flower. By this simple method they do well, and occasional watering and shading for a time after planting is, of course, beneficial. But a better plan is to pot them off separately in small pots as soon as rooted, and keep them in a frame till the pots are full of roots, giving them plenty of air, and planting out at last during moist weather.

To obtain a fine bloom, occasional watering will be necessary, and liquid manure may be used with advantage. But this trouble may be dispensed with, for if the soil is good and well manured in the first instance, they only want a little watering for a week or two after being first planted, and for the rest of the season will take care of themselves.

When first planted, slugs and snails are very fond of them. To prevent the ravages of these pests, plant with them a batch of lettuce, and while there is a young lettuce left the phloxes will be untouched. When established, vermin will not touch them. Phloxes make a good third or fourth row in the rear of geraniums and other bedders.

The older and hardier kinds are superb shrubbery ornaments; some of the pure whites, and and purple selfs, make huge tufts if let alone for several years, and flower earlier than the choicer kinds which are annually propagated. But for a fine bloom fit for exhibition purposes, the system of annual propagation should be followed, and a luxuriant growth should be promoted by affording them abundance of food. Named phloxes are classed in two sections: the first bears more or less affinity to P. suffruticosa, which flowers in July and August; the second to P. decussata, which flowers in August, September and October. As may well be understood, many of the varieties partake pretty equally of the characteristics of both sections.

The selection which follows is made to comprise an equal number of each section; but it may be well to add that the late-flowering varieties are those which are in the highest repute. There is great sameness among phloxes, yet in the selection here offered the most distinct kinds only have been taken; and though in many instances the brief descriptions are the same, the varieties themselves differ sufficiently to make them individually interesting, as they are all extremely beautiful, and well adapted to engage the attention of discriminating cultivators.

Twenty-four Early-flowering Phloxes.—Abdel de Lepidinum, shaded rose; Abdel M. Khan, white and rose; Addisonii, white, carmine centre; Atlas, light rosy lilac; Colonel Dundas, dark purple; Col. Maclean, rosy purple, shaded maroon; Countess of Haddington, purple-lake, crimson centre; Countess of Home, white, dark crimson eye; Countess of Morton, pure white, Lady Abercromby, white, crimson eye; Lady Musgrove, white, rosy crimson eye; Lydia, French white, rosy eye; Madame Breon, lilac striped; Magnet, shaded peach; Magnifica, shaded white, violet eye; Miss E. Spedding, white, crimson eye; Mr. Hollandre, white, pink eye; Mr. Lithgow, shaded rose-puce; Mrs. Bald, silvery white, crimson eye; Mrs. Gillon, silvery white, pink eye; Pearl, french white; Princess, deep peach; The Bride, white, light rose eye; Volcano, dark rose, red eye.—*Gard. Weekly.*

The Champagne Country.—Rheims is the heart of the Champagne country. The city is about 120 miles from Paris, and is divided into an old and a new part. The hotels are old, and one has been a family property for three generations. The great cathedral is remarkable for its unity, and its porches are crowded with figures and decorations. Some seven hundred statues fill the three porches; five hundred being nearly life size, ane the rest colossal. There is also humorous and bad sculpture. The foundation was laid in 1212, where Christian churches had stood since 401. The Maid of Orleans assisted at the coronation of Charles VII here. The church of St. Remi is another ornament of Rheims, and was built in 1041.

The principal importance of town originates more, however, in its champagnes than its churches. It sends 13,000,000 bottles to market annually, of which the United States takes 2,000,000. England, Russia and the East Indies compete with the United States; then follows France and other countries. The Heidsieck (Piper) brand exports 40,000 bottles to the United States annually; G. H. Mumm & Co. and Charles Heidsieck & Co. 12,000 each; King & Co. 11,000, Heidsieck & Co. 10,000, and others in lessening amounts.

The wine is mostly genuine. Some producers of less note manufacture from a grape which does not grow on the hills near. The chief exporters say that the wines sent here are inferior to those sent elsewhere and retained. The great vintage of 1858, known as the "Consular Seal," is the best, and is drank by the manufacturers. Moet & Chandon, in same department, but out of Rheims, sell 2,000,000 bottles yearly; have an establishment covering 12½ acres, with two miles of vaults. Some of the Rheims' manufacturers have their vaults at Epernay.

The Heidsieck may always be relied on as a pure wine, but not of the highest quality. Madame Clicquot was a dwarfish old lady, and died in 1866. Her wine is brandied and sugared to suit the Russian taste. Louis Roederer & Co. won repute by charlatantry, and now sell 75,000 dozen annually. A well known brand is sure wealth. The Mumms make a fair average wine. De St. Marceaux is the most expert and conscientious manufacturer, and when a connoisseur wants the best in the country he can surely get it from him.

The *vin mosseux* or champagne hardly dates beyond the eighteenth century. In 1780, 6000 bottles was a large year's manufacture for Moet & Chandon, who now sell 150,000 dozen. At Hautvilliers, an hour's ride from Rheims, lived Dom Perignon

until 1715, the *procureur* of the Abbey, and the inventor of champagne. He was a born judge of wine and improved his ability by practice; and he, too, invented the champagne cork. Great efforts are made by manufacturers to introduce new brands, and heavy costs are incurred. The trade to the United States is by means of stationary agents; but not so in France and Europe, where the busi- is chiefly retail, and done by travelling agents. Well known brands cannot be bought directly at Rheims. The best wine ever made can bought without the brand.

The average cost to the manufacturer is 2 to 2½ francs per bottle, but it costs 7 francs at the Rheims hotels. The Germans control much of the champagne trade at Rheims. The Hiedsiecks, Piper, de Sachs, the Mumms and Roederer are all Germans, and every wine establishment in all Champagne is, more or less, under their management. The cause is said to be, French commercial inaptitude. The sound, practical education of the Teutons has also something to do with this. The manufacturers have largely intermarried with the French noblesse. The soil which grows the champagne is very poor. Rheims is a desert. The wine district is more attractive. There are about 41,030 acres, shared between 16,095 proprietors. They live in stone built villages. Epernay, Chalons and Ay are towns of some size, and have large manufactories of other kinds.

The Rilly and Bouzy, red wines, are grown here, but when perfected, cannot travel without injury. Champagne is made by discriminating the products of various vineyards and combining their qualities.

The grape crop of 1865 was distinguished for its amount and fine quality; that of the next year was worthless. The pressing of the grape, mixing of the varieties and bottling and storing, are all very delicate duties, and in 1857–8 the loss by breakage from gas was 25 per cent of the whole. It averages 10 per cent., and is controlled by employing a lower temperature. The wine is nursed from two to four years, and is in constant motion. Commercial Champagne is rarely kept more than two years; that of '58, the best ever made, is just perfected.

When the wine is sold, each bottle is opened and a *liqueur*, composed of white sugar, white wine and spirit of cognac is added to suit the market. France and the continent want a light, sweet wine; Russia sweet and strong; England dry and vigorous, and America something between the French and English. Dry champagne must be made from the finest raw wine, sweet can be made from any material. The very best go only to England.

A bottle of ordinary champagne contains from 30 to 40 per cent. of *liqueur;* dry, fine wine, 10 to 15 per cent. The cork is put in by a machine. For the English or American markets a dozen bottles are put in a basket, and thirty or more for a French or continental customer, and then the work is ended.

Champagne should not explode noisily or frothily. Good wine absorbs carbonic acid, and its sparkle will continue for twenty-four hours. In 1846, a manufacturer saved but 120 bottles out of 6000, owing to the poor quality of his bottles. The connoisseur must rely upon taste and smell in forming his judgment. If his sight shows that the wine flows smoothly, sparkles briskly, is transparent, glistening and of a pale, amber color, he may believe he has a good and old wine. Wine to to be tested should have a temperature of 50a54 degrees Fahrenheit. If good, a drop or two on the hand will have an aromatic odor; if bad, a mixed sugary and spirituous smell. The *bouquet* is only to be detected by the palate.

There is not much adulterated with poisonous ingredients in this country, though much which is manufactured. The only security is to buy from an authorized agent. All the wine from Champagne is not genuine. One Rheims manufacturer exported every wine and spirit a customer desired. Champagne does not improve by age. A voyage, however, helps it; by mixing the liquor. When bought, the bottles should be laid on their sides, at an angle of 45 degrees, with the necks down. It should always be drunk cold. A pointed rather than a round or flat-bottomed glass increases the effervescence.—Phila. *North American.*

Eglantine.—What plant was meant by "Eglantine" by the ancient writers has been disputed, but we are of opinion that they so named what we term the Sweet Brier. Shakespeare puts into the mouth of Oberon the lines:

> "I know a bank whereon the Wild Thyme blows,
> Where Ox-lips and the nodding Violet grows;
> Quite over-canopied with lush Woodbine,
> With sweet Musk Roses and with Eglantine."

So the Eglantine could not have been the Woodbine, as some suppose; and in "Cymbeline" the same poet speaks of the sweet perfume of the Eglantine's leaves. Old Gerarde says—"Eglantine, that is Sweet Brier," and Turner, a still older herbalist, calls it "Eglentine, or Swete Brere."—*London Journal of Horticulture.*

[The English peasantry, whom we have found pretty good on vernacular names, point out the Dog Rose (*Rosa canina*) as Eglantine.—Ed. *G. M.*]

Fertility without Fertilization. — Great surprise was occasioned some years ago by Mr. Smith, of Kew, announcing that Cœleboygne illicifolia, an Euphorbiaceous plant, produced seeds rom the only plant in England, and that plant a female. The following from the *Gardener's Chronicle* explains it:

"Dr. Müller adopts Karsten's observations in regard to Cœlebogyne (an unfortunate hybrid word, not improved byBraun's alteration into Cælebogyne, here adopted by the author, who has not noticed that John Smith wrote it differently) which were too generally ridiculed by botanists in this country. They give the only satisfactory explanation of the seeds in a diœcious plant, without contact with the staminal flowers. Mr. Smith succeeded in raising plants from the seeds of his female plants, and he could not discover any pollen-bearing organs connected with them. In the discussion that arose out of this curious fact it was maintained by Naudin and Decaisne that the female plants could produce perfectly ripe seed; Klotsch held that the seed was without an embryo, but had instead a bud; Braun determined that the seed contained a true embryo, but he discovered a pollen grain on the stigma, although he could not trace its origin; Karsten noticed that some female flowers occasionally bore a somewhat deformed stamen the anther of which contained perfect pollen; and Muller, although he has not seen a female plant that was staminferous, sees no reason for doubting this observation, as a similar phenomenon has been frequently observed in the Euphorbiaceous genera.

A Floating Island.—One not unfrequent incident in the life of the Swamp Cypress is its growing on floating islands in the creeks connected with the Mississippi, and by its long roots anchoring them and converting them into stationery land. "One of my fellow passengers," says Sir C. Lyell (Second Visit, ii., p. 186), "urged me to visit Lake Solitude, 'because,' said he, 'there is a floating island in it, well wooded, on which a friend of mine once landed from a canoe, when to his surprise it began to sink with his weight. In great alarm he climbed aCypress tree, which also began immediately to go down with him as fast as he ascended. He mounted higher and higher into its boughs, until at length it ceased to subside, and looking round he saw in every direction, for a distance of 50 yards, the whole wood in motion." On inquiry Sir Charles learned the explanation of this marvellous tale. It appears that there is always a bayou or channel connecting during floods each deserted bend or lake with the main river through which large floating logs may pass. These often form rafts and become covered with soil supporting shrubs and trees. At first such green islands are blown from one part of the lake to another by the winds; but the deciduous Cypress, if it springs up in such a soil, sends down strong roots, many feet or yards long, so as to cast anchor in the muddy bottom, rendering the island stationary."

Hybridizing Fruits.—*The Journal of the Royal Horticultural Society* contained some time since an account of experiments made by John Sandish, florist, in hybridization, which were confined to greenhouse grapes and fruits. He raised 500 grape seedlings and fruited 400 sorts. One of their most successful experiments was with the Muscat of Alexandria, bearing an oval grape, very difficult to cultivate; and the Trovéren, bearing a round grape and a remarkable free grower. The former was made the female parent. The best result of many experiments was a large, early black grape, oval in shape, and having the slightest possible taste of the Muscat. The most remarkable case was a perfect miniature of the Muscat of Alexandria, perfectly oval, with the strongest Muscat flavor, but in size not larger than a red currant!

He succeeded in obtaining peaches with Nectarine flavor. The Nectarines, made the female plants, were the Violette Hative, Pitmaston Orange and the Stanwick, crossed with the Noblesse and Barrington peaches. Although the Violette Hative Nectarine had a small flower, still when crossed with the large flowering peaches, eight out of twelve were large large-flowered; and out of fifteen kinds, fruited in one summer, only one was a nectarine, the others were all peaches, most of them with the nectarine flavor.

Graft Hybrid.—Anderson Henry, in a paper read before the Botanical Society of Edinburgh, March 14th, says: "Since writing the account,I have just read of the Cytisus purpurascens, or Cytisus Adami, and stating, as I have done, on the authority of a notice given of it in Lindley and Moore's "Treasury of Botany," of its being a hybrid,I have this morning, read another account of its origin in *The Farmer* of yesterday, where, reporting the proceedings of the last meeting of the Royal Horticultural Society, it is stated—'Mr. Lee, Clivedon, Bristol, sent most remarkably dissimilar examples of Apples from the same branch of a tree of Orange Pearmain, which was a fertile subject of comment at the meeting. The tree was the true variety, and

the other samples were of a russety cast, instead of the bright crimson coloring common to the original. The Rev. Mr. Berkeley instanced Cytisus Adami as a sport of a similar character, which is believed to have been produced by grafting Cytisus purpureus on the Laburnum, and by some accident one cell of the stock and one of the graft having each become divided, and then united together, the result had been a plant partaking of the nature of both. Mr. Berkeley suggested that it would be most interesting to know the stock upon which the Orange Pearmain had been worked.' Whatever be its origin, the facts I have stated, and which, probably, many of us have seen with our own eyes, of the same tree producing three kinds of flowers, and two, if not three, different kinds of leaves, there can be no doubt of these having resulted from the operation of grafting. The two kinds of fruit, too, of the Pearmain seem to have arisen from the same cause. And it would seem, also, that many of the sports we see and hear of in Roses, in changing color, and betaking themselves to a climbing habit, are due to the same cause.

Grafting the Muscat Hamburgh Grape.—Although delicate, it is a delicious grape,—in my opinion, in point of flavor, the best of its class. It is one of those varieties that do not succeed well upon its own roots, in all cases, as it wants vigor. In specially prepared inside borders, I have seen it doing moderately well; but in no case ha e I seen it equal to the vine at Eridge Castle, where it had been worked on the Frankenthal. There it was certainly quite at home. and in a very promising condition, and fu.ly bore out Mr. Rust in his statement that the Frankenthal makes an excellent stock for tender varieties. This variety of Muscat is certainly deserving of more extensive cultivation, as the peculiar richness of the Muscat flavor is so prominent, that none can fail to detect its superior qualities.

Before I proceed further, I would wish to give my opinion as to the manner in which the above varieties are to be improved. Not that I can say much in addition to the remarks already made, but I think it best to devote a paragraph especially to the subject.

As to the Muscat of Alexandria, I believe it to be open to much improvement, if worked upon such sorts as the prolific Sweetwater, and the Champion Black Hamburgh. The influence of the first-named as a stock, I am aware, rather checks its vigorous growth, and at the same time rather reduces the size of its berries. But for the real lovers of Muscat grapes this slight drawback is more than counter balanced by the fact that they require a shorter time to mature their crop in than when upon their own roots. But as to any of the Black Hamburgh varieties as a bottom for it, we have from such an authentic source such correct information, that it succeeds better upon these than upon its own roots in an unfavorable position, that any remarks of mine as to the desirability of using them as stocks would be superfluous.

What the effect of growing the Cannon Hall Muscat upon the roots of any other variety would be I have not sufficient information to show, as I have never had an opportunity of testing it; but from what I know of its character, I have a doubt it would improve under such treatment, although I should be glad if those who may have the chance to do so would give it a fair trial, and report the result.

Then, as to the Muscat Hamburg, I have already stated where I had seen the good effect of growing it upon the roots of the Frankenthal at Eridge Castle; and nothing could be more desirable than the condition of it at the time of my visit, which is a sufficient proof that, although destitute in itself of a robust constitution, that desirable character is to be given it by grafting it upon some vigorous variety.—Correspondent to *Gard. Magazine.*

Roses.—At the Spring Show of the Royal Botanic Society, London, Mr. Wm. Paul did justice to himself by his splendid group of pot plants, comprising neat little specimens two feet high and through, and pyramids of four feet high or more, with every intermediate size—just such a group, in fact, as of themselves sufficed to form a picture. As the names of varieties that can be shown in perfection, in this way, in the early part of April may be useful to many readers, here they are:

Prince de Sortia, scarlet carmine, quite dazzling in color, and otherwise a charming rose; Anna Alexief, Madlle. Berthe Leveque, Senateur Vaisse, more inclining to scarlet or vermilion than usual, very brilliant, the plant in a 12 inch pot, standing 3 feet high, and 2½ feet through, (with 35 flowers, none of them full out—a charming sight); Madame Rousset, a fine, large flower, the color bright rose; Centifolia Rosea, extra grand in character, though inclining to the character of Anna de Diesbach; Marquis de Foucault, finely done; President Mas, Fisher, Holmes, superb in color, which approximates to scarlet, form beautiful, being imbricated like a Camellia: Madame Bod, a good forcing rose, though rather coarse; Madame Fillion, Celine For-

estier, a fine plant, 4 feet high and 2½ feet through, about 25 flowers, the color cream, deepening to primrose; Madame Hoste, Madame Damaizin, Madame Marie Rody, a large Macaulay-like flower, very fine; Alba mutabilis, Bernard Palissy, Glory of Waltham.

Messrs. Paul & Son, of Cheshunt, presented a beautiful group, comprising Marechal Niel, (rich, lemon yellow, the best example of it in the exhibition), Madame Moreau, Mlle. Berthe Leveque, Madame Victor Verdier, Souvenir d'un Ami, Pierre Notting, Victor Verdier, General Jacqueminot, Madame Fillion, Charles Lawson, Madame Willermoz, Lord Clyde, Madame Caillat, Charles Rouillard, Madame C. Wood, Celine Forestier, (white, with yellow centre, beautiful), Princess Mary of Cambridge, Exposition de Brie, Vainqueur de Goliath, Alfred Colomb, Achille Gonod, Fisher Holmes, Souvenir de Dr. Jamain.

A collection of cut roses from Messrs. Paul & Son, comprised beautiful examples of Victor Verdier, Duke of Wellington, Alba Rosea, Exposition de Brie, Marcella, Comte Alphonse de Serenye, Baronne A de Rothschild, Senateur Vaisse, Madame Victor Verdier, Marechal Niel, (a fine example, the color lemon yellow,) Beauty of Waltham. Pierre Notting, (fine,) President, Madame A. de Rougemont, (a lovely rose, better doubtless than of pure white,) Duchess de Medina Cœli, Camille Bernardin, Triomphe de Rennes, Lamarque, Marechal Niel (better color than in Mr. W. Paul's lot, coming very near to clear yellow), General Jacqueminot, (still good), Madame William, Devoniensis, (pale primrose), Centifolia Rosea. Messrs. Paul & Son also put up a great collection of cut roses that were alike delightful for beauty of form and color and fragrance.

Foreign Correspondence.

Paris, July, 1867.

Dear Monthly:—When you saw the handwriting on the envelope you "saw better twice than once, better once than not at all," forgive your dilatory "occasional," who is very occasional indeed, and a very busy and frail mortal withal. But to business and into *medias res* at once.

A change of scenery has just been made in what is called *le jardin reserve de l'Exposition universelle*, which I want to describe to you. So rapid a change though that it reminds you of those made on the stage at a whistles notice. All plants, shrubs, etc., that have done flowering, have been removed over night and the garden has changed appearance by new plants, flowers, etc., all in full bloom, and by new arrangements. These changes will go on until Chrysanthemums, Euonymous, etc., close the year. If the Exposition continues through the winter, we shall have one-half the garden laid out as winter scenery and the other half roofed in into Cape and Australia scenery.

I wish you had seen the ground on which this fairy garden rose. In winter a swamp, in summer a sand heap. Not a trace left to discover the original ground. Hills thrown up, valleys dug, streams meandering and collected into lakes, over forty *constructions* built on it, some really artistic works of art most pleasing to the eye and well adapted to to their purpose. Plants from all parts of the known world. Old trees successfully transplanted, amongst them a fine Acer platanus and a(Spanish) Chestnut tree, so shady and so thrifty that one's notions begin to get shaken, and that one gets almost inclined to think that vegetation henceforth courts locomotion.

Who is the spirit that made praise, this fairy abode, their delightful realms? I quote the promenading folks and—per parenthesis—these folks are, if foreigners, generally such whose means have schooled their taste and if French, the best natural critics.

The name of this spirit is Barillet, City gardener, or better Jardinier en chief de la Villa de Paris. No small charge this, considering the many green places, Squares, Parks, grass borders, shade trees, etc., of this vast city, and the continual increase of them. Considering also the ambition of the Paris people and of the authorities to beautify Paris more and more.

Now with the exception of the making and laying out of the grounds, everything your eyes see in this reserved garden is 'exhibited.' Every tree, every shrub, every plant, every group, every basket, every border, every, everything. The exhibitor, under the auspices of Mr. Barillet had also to do the work of planting, grouping, etc. Thus the garden is the collective product of numerous contributors, not only of gardeners proper, but of all allied arts and handicrafts.

Thus some one exhibits a bed of lava for the pond, another rustic cottages 'chalets,' another bridges; thus the great fence enclosing the garden, represents several foundries and is harmoniously put together.

Some of the finest collections have been brought hither from the Island of Hyeres. It is one of the

many islands favored by nature with a milder climate and richer vegetation than the adjacent continent. Instance your own Newport, Rhode Island, with a winter that resembles more that of Charleston, S. C., than a New England one. I instance also the island of Jersey and Guernsey in the channel, and as last illustration that of Hyeres, with its mild Sicilian climate and rich vegetation, whilst the neighboring coast of southern France is sandy and sterile. The Island of Hyeres has sent beautiful Evergreens, splendid Magnolias, Rhododendrons, Agaves, dwarf palms, date trees, pomegranate trees, lemon and orange trees and a couple of gigantic Cereus.

Next to the reserved garden is a fruit garden. And here the "espalier" system is exhibited in all its varied forms, from the simple to the compound, from the plain straight to the tortuously complicated. That is called by the French the arboriculture *de precision*. The variety of specimens is not very great, but both fruit and vegetable of pretty much all conceivable kinds is there, from tomatoes to pine-apple, from frontignac grapes to artichokes, and the kinds shown are the best ones. Here also you can study man, or for that matter, you can study men, women and children. Oh! the looks and the inner sighs, to touch but with the eyes only; to taste, but with the imagination only. The most outspoken are as usual the children; the next are the daughters of Eve, the rear is brought up by the sons of Adam.

Not less than fourteen glass-houses are on the grounds. Here you can study all shapes, systems, arrangements and sizes. Hot houses, warm houses, cold houses, fruit houses, vineries, French, English, Belgian, Dutch, German style; the plain, the elegant, the combined, with and without wings or central dome. The largest is the middle one, a bold piece of architecture, of bolder conception than anything I ever came across.

A very fine cascade, falling over rocks of divers shapes, and some of them "with verdure clad" of different zones. The water forms a little sheet, stocked with the famous carps of Fontainebleau. I said famous. Perchance you are ignorant enough not to know that old Fontainebleau, from time immemorial has a nursery of carps—that many and many moss-covered fellows swim there one or two hundred years old—age not warranted—and comes up from the recesses of the deep, when the children throw crumbs in the water. A school of them has been brought also to stock this lake.

Ad vocum water, let me mention the Aquaria. There are two of them, and it is worth travelling many a long mile to see them. A stream flows through the sheet water aquarium. All the fishes of Europe have their representatives to this finny congress. Salmon, pike, carp, eels, mackerel, down to the most insignificant.

The salt water aquarium is a beautiful and most creditable construction. Decorated with stalactites, sea plants, etc.; peopled with fishes of all possible hues and shapes. Oysters and Lobsters have their own habitations in it.

Impossible though, Dear MONTHLY, to particularize all the wonders of this garden. If 'premiums' for subscribers are still the order of the day in your country, I would propose to you to take all your readers, or rather all your subscribers over here in the Great Eastern. There is horticulture in this exhibition sufficient to fill your next ten volumes, and possibly you can then draw these 'life' subscribers. And so I will not mention the pavillions, kiosks and arbors innumerable, nor the galleries, exhibition tables, and the like. I will lead you to but three more *constructions*, two for the orchestras, that entertain the ear, whilst vegetation feasts the eye. And lastly to the pavillion of the Empress, a most charming little concern, wonderful to behold. Not as it would be the height of indiscretion to trepass on the abode of a lady, and that lady so good and so sweet as the Empress of the French—we here part. And until we meet once more in these exhibiting grounds.

I am yours ever, W.

Horticultural Notices.

PENNA. HORTICULTURAL SOCIETY.

Essay on Window Plants (see page 268.)

(DISCUSSIONAL MEETING, Aug. 6th)

President D. Rodney King in the chair.

MR. KING said amongst the plants recommended by the essayist the Cactus tribe was particularly well adapted to window culture, they suffered nothing by occasional neglect, and bore a dry and close room with impunity. He referred to Mr. Meehan as a lover of Cacti, and invited him to give his experience with them as window plants.

MR. MEEHAN, confirmed the views of Mr. King in regard to the availability of Cactuses and succulents generally as window plants. Some, like *Cereus flagelliformus*, had a drooping habit well calculated for hanging vases; others like *Rhipsalis* had a graceful character as bushes, which harmonized with other flowering plants, and even the most uncouth looking had a beauty when closely scrutinized, which

even their generally gay flowers could scarcely eclipse. There were two great difficulties in the way of growing window plants which had not been adverted to,—insects, and the fumes of burning gas; of the former, Red spider and Scale were the worst to the window gardener. Scale was easily destroyed by dipping the plants in water heated to 130°, and Red Spider in water in which coal oil had been dropped—barely enough coal oil to make a thin glaze on the water. From the bad results of burning gas he knew no remedy, but to partition off the plant cabinet from the rest of the room.

Mr. King, doubted whether unless there was a leakage from the gas pipes there could be any danger; so far as he understood, there was nothing left after the combustion of gas which could prove injurious.

Mr. Robt. Scott had never noticed any bad effects of gas on plants in dwelling houses; although he had noticed that when we had our exhibitions at the Academy of Music, where the gas had to be lit day and night, the plants suffered very much. He thought it was the escape of gas, not the combustion. Had seen in Mr. Fahnestock's greenhouses terrible losses from the *escape of gas*. Opening of doors and the usual ventilation of rooms, he thought would prevent any danger to plants from this cause.

Mr. Hibbert, thought the consumption as well as the escape of gas had a baneful effect on plants. In his employer's parlor where the gas arrangements he thought were perfect, Azaleas soon dropped their leaves after being taken there from the greenhouses. This he had observed for three year past. Bouquets and baskets of cut flowers also soon faded away under such circumstances. In his own house, where he burned coal oil, he could keep plants much better than he could in his employer's gas-lighted rooms

Mr. Blodgett believed the injury laid to the door of burning gas, was really the fault of dry air from furnace heat.

Mr. Meehan gave instances which had come under his observation in Germantown, of people noted for their success in window culture, under the old state of things, who had failed after introducing gas, although no change had been in their old fashioned heating arrangements.

Mr. Blodgett grew plants tolerably well in his gas-lit rooms, by taking care to keep plates of water about the furnace registers to modify the dryness of the atmosphere, but many failed in time. The Azalea seem to stand room culture best. He had saved them for a number of years in good condition. They would hold their blossoms for 20 or 25 days. Geraniums would always grow well for him, but did not bloom freely.

Mr. Kilvington said he had found a curious notion prevail in town that plants in rooms were injurious to health. His mother was a rare lover of flowers. The house was stock full of them, she lived amongst them for 85 years.

Mr. Lorin Blodgett kept plants in house mainly on account of their health-giving value.

Mr. A. W. Harrison explained that plants were essential to health. The human breath exhaled carbonic acid gas, which when it accumulates in large quantities becomes a deadly poison. By a wise provision of nature, plants were so constituted as to use as nutritious food what was fatal to man. They consume carbonic acid and thus purified, instead of contaminated the atmosphere.

Mr. Rodney King suggested that some flowers had peculiar odors, which might have an injurious tendency, and thus give rise to the general error refered to.

Mr. Sypher (of the New York *Tribune*), characterized the idea of room plants causing disease, as a prejudice, but not altogether a vulgar one, for there was a sort of mania amongst Savans to account for diseases, which frequently seized on coincidences in the absence of real causes for disease, and this of plants being unhealthy has been urged by men of reputed intelligence. He proceeded in a pleasing manner, referring to the great beauty of many wild flowers, and of their adaptation to home adornments. As an instance of their capacity for improvement, he instanced a friend in Lancaster, who had produced Wild Anemones as double as the foreign one. The Central Park in New York had paid attention to this. Beautiful wild flowers and native shrubs, afforded some of the chief objects of interest to the visitor, and in the pursuit of this object the Central Park Commission had communication with and the co-operation of the chief Associations of Science and Natural History in the land. New York could boast of no such splendid Hall as this of the Pennsylvania Horticultural Society, but a New Yorker might be pardoned for giving this just tribute to the management of the Central Park.

Several gentlemen spoke of the lack of artistic talent manifest in Fairmount Park, and

Mr. Lorin Blodgett suggested that he had no doubt the New Board of commissioners would gladly receive any suggestions the Society might make to it, and with the understanding that some such resolution should be introduced at the next stated meeting of the Society, the meeting adjourned.

THE
GARDENER'S MONTHLY.

DEVOTED TO

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THOMAS MEEHAN, Editor.
W. G. P. BRINCKLOE, Publisher.

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Hints for October.



FLOWER-GARDEN AND PLEASURE-GROUND.

Dahlias, Gladiolus, Tuberoses, and other plants that require winter protection for their roots in cellars, should be taken up at once on their leaves getting injured by the first white frosts. The two latter should be pretty well dried before storing away, or they may rot. Dahlias may be put away at once.

Chrysanthemums now in flower should have their names and colors rectified against the time when in spring they may have to be replanted, when they can be re-arranged with accuracy and satisfaction, according to the owner's taste.

Herbaceous hardy border-flowers are often propagated in the fall by dividing the roots; but, unless it is convenient to protect the newly-made plants through the winter, it is better to defer this till spring, as the frost draws out of the ground and destroys many. Where it is now resorted to, a thick mulching of leaves or litter should be placed over the young stock when transplanted.

Few things are more valued in winter than a bunch of Sweet Violets. A few may now be potted, and they will flower in the window toward spring; or a small bed of them may be in a frame, which should be protected by a mat from severe frost. To have Pansies flower early and profusely in spring, they may be planted out in a frame, as recommended for the Violet.

Many kinds of hardy annuals flower much better next spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in spring they must be transplanted to the desired position in the flower-border.

Hyacinths, Tulips, Crocuses, and hardy Dutch bulbs generally, must have immediate attention. Crocuses and Snowdrops are often planted out in the grass on the lawn; the former is not very objectionable as the leaves have so close a grass-like appearance; but the last should never be so employed, the foliage giving, the whole summer afterwards, a very coarse and weedy appearance to the lawn.

Hyacinths and Tulips may be set out in the beds devoted to summer-flowering bedding-plants, as they will, in a great measure, be out of flower before the bedding-time comes around, when they can be either taken up and transplanted to an out-of-the-way-place to ripen, or the bedding-plants can be set in between where the bulbs grow, without either much interfering with the success of the other.

As a manure for these bulbs, nothing has yet been found superior to well-decayed, sandy cow-manure; but where this is not conveniently at hand well-decomposed surface-soil from a wood will do as well.

The first two weeks in October will be the great tree-planting month of the fall season; and, as we have last month stated, the operation cannot be proceeded with too rapidly. In this region, at least, after the end of this month, every day's delay increases the risk of loss by the severity of winter; and, after the 15th, we would not care to plant evergreens, unless they were comparatively small, and the operation conducted with great care. Occasionally great success follows later planting—owing more to good luck than sound judgment. Where planting is of necessity delayed, the risk is made less by pruning. The later a tree is planted, and the more exposed the situation, the more in proportion should it be pruned. It has become a pretty well settled axiom in American gardening that the way frost acts in destroying fall-planted trees is by ex-

cessive evaporation, by which the moisture is dried out of them; and this is to be obviated by shelter from cold winds, protection from the sun's rays, pruning, and other ways, which will suggest themselves to the reader according to his peculiar circumstances.

All operations connected with ground-work are now being pushed forward rapidly—grading, road-making, lawn-making, and so on. So much has been said of lawn-making in our past issues, that little remains to be said here. One of the newest improvements in sodding a lawn is not to lay the pieces of sod close to each other. Pieces can be cut into any size or shape and laid down several inches from each other, the soil being loosely thrown aside by the trowel to make the surface of the sod and the surrounding soil be nearly level. On a large scale, a wide drill which any ingenious laborer could construct, or even a shallow furrow with a plough as in "marking out" for a corn crop, might be employed, and the pieces of sod, about six inches square, set in four or six inches apart. A bush-harrow, afterwards drawn over the lot, levels the loose soil in the spaces between the sods, and the roller afterwards passed over the whole makes a good, firm, plane job. When the grass commences to grow in the spring, it soon spreads into the unoccupied spaces; and before midsummer the whole becomes one uniform sheet of grass. This method, which may be called sodding by inoculation, saves just one-half the cost of sodding by the usual mode, and is very near as good, in fact, quite as good, after a few months of time, and costs very little more than seeding-down, which, except under the management of one who thoroughly understands his subject, is one of the most unsatisfactory of all regular modes. Where seeding-down is to be the mode, now is the time to see about it.

The greatest difficulty we have to contend against in making good lawns is the coarse rank weeds with which most parts of our country abound; and no effort that can be made to guard against their introduction, or to provide for their eradication at the outset, will be ill spent. It is often an easy matter at first; but after they have once been suffered to establish themselves, it is often better to dig or plough up the whole surface and lay it down anew. Sometimes much may be accomplished in old lawns by digging out the weeds with a trowel or spade, filling up the holes with soil, into which the grass will soon run and obliterate the traces of the work.

In all our operations *saving labor* should be our first consideration—not that kind of labor-saving which half does an operation, but which will produce an equal result at a less cost. The introduction of grasses that will always remain green, and yet grow so slow as to require little mowing, is one of the new features in this line. Experiments are wanted with many kinds of native plants that are to be found in most localities. Of course, all those who propose new improvements or try novel experiments will be laughed at and pointed out as "humbugs;" but that should not deter any one from following the path of progress.

Where a choice can be had of a kind of grass for a lawn, in our opinion the perennial Rye grass (*Lolium perenne,*) is the best for general purposes. Its shining green leaves, playing in the spring suns, give a very cheerful effect to lawn scenery. Its only drawback is that it will not bear very close mowing in hot weather, if once allowed to grow long. Kentucky Blue grass, (*Poa pratensis,*) the Green Grass of Pennsylvania, also makes a fine lawn.

GREENHOUSE.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do no more than refer to the fact.

Bulbs for flowering in pots should be planted at once. Four or five-inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.

Where many flowers are desired for bouquets in winter, a good stock of such as flower easily should be provided, especially of white-flowering kinds, without a good sprinkling of which a bouquet has but a very commonplace look. Deutzia gracilis and D. scabra, Philadelphuses, and Tamarix are very good hardy plants to pot for winter flowering. The Iberis sempervirens is also a splendid white to force for its white flowers. Lopezia rosea is nearly indispensable for giving a light, airy gracefulness to a bouquet; and Camellias and Azaleas cannot possibly be done without.

Many kinds of annuals also come well into play; amongst other things, Phlox Drummondii, Sweet Alyssum, Collinsia bicolor, Schizanthuses, Mignonette, and Nemophila are essential.

FRUIT GARDEN.

There is considerable art in raising fruits; but there is as much or more in gathering and ripening them. Pears and apples are ready as soon as the seeds begin to turn black, or as soon as they will part easily from the tree by gently raising the stalk, or as soon as the leaves show indications of falling from the trees; indeed, whether they are duly ripe or not, no length of time will avail them aught after the leaves fall. No rules can be given for the exact place to put them away in, but the principle must be applied to each individual case. In the first place, the fruit-shelves must be secure from frost. In the next place, it must be just moist enough to prevent withering, but not too much so, or the flavor will be inferior. Nor must it be too hot, or your fine *Beurres* may become *Fondantes*, or resemble cooked *Pommes des terres*, alias boiled potatoes. If it is too cold—barely above the freezing point—the fruit becomes insipid and tasteless. The happy idea is to strike central to all these extremes. Of course, they must be hand-picked from the tree, as the slightest bruise causes decay. The stock must be occasionally overhauled anyhow to take out such as will be found, from various accidents, in a decaying state. Apples, for commercial purposes, are usually barrelled-up, with chaff or other light substance between each layer; and some pears, such as Lawrence, will bear the same treatment; but such preserved fruit are never equal in quality to those preserved in a more open way on shelves.

VEGETABLE GARDEN.

Lettuces sown last month will now be large enough to set out for permanent growth. A common hotbed frame, set on a bed of leaves or spent stable-manure, will enable one to enjoy delicious salad all through the latter part of winter, where sufficient protection against severe frosts can be secured. In this division of our Hints, it is more of an object to preserve them through the winter for the purpose of setting out in the open air in spring. In the warmer States this can be readily effected by their being set out in the open air in a sheltered place. Here in Pennsylvania they often do very well by having the ground thrown into ridges about six inches deep, running east and west, and the plants set out on the northern sides. They have a little straw thrown over them in severe weather, and get through the winter admirably, heading early in spring. The Early York Cabbage is extensively grown the same way. Where the climate is too severe to allow of this, they must be put under cover of shutters, as before described in our Hints.

Cabbages can be preserved in such a cellar, though most prefer them in the open air. One way is to pack them closely together with their roots uppermost, and then cover them with soil, on which straw or litter is thrown to keep them from freezing. By being packed this way, the water cannot get into the hearts, which is one of the chief causes of their rotting. Where plenty of boards can be had, they may be packed with their heads uppermost, and the rain kept off by the material.

Brocoli and Endive may be taken up with balls of earth, and set in cool cellars closely together, and they will grow sufficiently—the former to produce good head, and the latter to blanch beautifully all through the winter.

Asparagus beds should be cleaned, by having the old stems cut off and the soils from the alley ways dug out and thrown over the beds. It keeps the frost from the roots, and thus permits them to grow and lay up matter all winter for next spring's growth. Very early in spring the soil should be raked back into the alleys, so as to leave the roots but a few inches under the soil, as the nearer they are then to the sun's rays the earlier will the crop be.

Celery must have continued attention to blanching as it grows, care being exercised to prevent the soil from entering the heart. Where very fine results are desired, the plants should be protected from early severe frosts, so as to enable the plants to grow without injury as long as possible.

Roots of most kinds, such as Carrots, Beets, etc., should be taken up before the frost is severe. They all keep best packed in sand in the open air, but it is too inconvenient to get at them in winter; hence cellars are employed to preserve them in. Cellars for this purpose should be cool, say with a temperature of about 45°, and not at all dry. It is not meant that it should be damp, as the roots will become rotten, but it must be moist enough to prevent shrivelling.

However, if any protection can be given so as to enable one to get at the pit in frosty weather, most things keep better so than in any way. Celery keeps very well packed in earth so that the frost does not get at it; but it must be laid with the tops sloping, so that the water may be kept out of the heart.

Communications.

FRUCTIFICATION OF RARE CONIFERS.

BY JOSIAH HOOPES.

The generality of arboriculturists are probably not aware of the value of a thorough acquaintance with the inflorescence and fructification of our trees and plants, as a means of determining their true positions and names. Whilst noticing alone the striking outward resemblance that so frequently exists between many allied forms, the earnest lover of nature too often ignores scientific rules as a vexation, and thus passes over the more important tests that are so beautifully displayed in the organs of reproduction, and from which the botanist is apt to gain his most reliable information. This view of the case has been so forcibly impressed upon me during the present season whilst studying the characters and relationship of our Conifers, that a desire arose to record some of my observations for the benefit of those who feel an interest in the dissemination of knowledge. True, we have the numerous scientific works treating upon this subject, wherein are recorded all the various descriptions that prove useful in their way; but we must consider that there is always something to learn, and that these descriptions have been compiled, in some instances, from imperfect specimens, so that when we become the possessors of information gained by actual experience, we must surely derive no small degree of satisfaction therefrom.

The *Libocedrus decurrens* of Torrey, which has so long been a "bone of contention" with foreign writers and nurserymen, and which is at the present time grown and sold for the *Thuja gigantea* of Nuttall, has fruited abundantly this year for the first time in cultivation, and proves to be distinct beyond the shadow of a doubt. The formation and arrangement of the leaves plainly pointed out the error in past years, but we now have sure evidence in the long, glossy, and beautifully formed cones. Dr. Bigelow described these cones as being pendulous, but Prof. Torrey thought differently; my own observation has been that the cones are erect or sub-erect when young, but decidedly pendulous as they approach maturity. These strobiles are oblong, inclining to ovate; scales all uniform in length, and terminating in a short, slightly recurved mucro. At the base are two opposite, recurved, bract-like appendages. Seeds quite large, with two broad, unequal membranaceous wings.

The next species in general interest is that so frequently known as the *Thujopsis borealis* of Fischer, but which should undoubtedly be called *Cupressus Nutkatensis* of Lambert. A plant ten years of age has furnished sufficient fruit this season to enable me to speak decidedly in regard to its correct classification. The cone is shaped very similar to that of the *C. Lawsoniana* of Murray, with the exception mentioned by Dr. Newberry, of the former having but four scales whilst the latter has six. Gordon is incorrect when he states the former has from six to eight scales. These scales are galeate, generally smooth, occasionally somewhat striate, and surmounted in the centre by a stout erect spine, and with mostly three seeds beneath each scale. In Siebold's genus *Thujopsis* the cones are composed of from 8 to 10 scales, with five seeds at the base of each.

A very handsome and hardy Conifer sent out by our Patent Office (?) a few years since, under the name of *Thuja Japonica*, is identical with the *Retinispora obtusa* of Siebold. As this species has proven hardy, and is certainly much to be admired on account of the charming silvery glaucousness on the under side of the foliage, I have been very desirous of obtaining all the reliable information possible concerning its history. In the first place it is as well to ascertain whether Siebold had sufficient grounds to establish this genus, and in this many of our best authorities doubt his character holding good. Endlicher, in his "Synopsis Coniferarum," acknowledges Spach's genus *Chamæcyparis*, and divides it into two sub-genera, one of which is the genus *Retinispora* of Siebold, containing the Japanese species; the other he calls *Euchamæcyparis*, and contains the American species, with our White Cedar (*C. thyoides*) as the type. Thus this genus has been gradually lowered in its station, until Lawson, in his magnificent new work entitled the "*Pinetum Brittanicum*," gives it a yet lower grade —in fact doubting very much whether its characters can stand at all. The author states that *C. Lawsoniana* bears a great resemblance to the genus *Retinispora*, as it possesses the resinous blotches under the skin of the seeds, which is one of the main distinctive features of the latter, and from which it derives its name. Another peculiarity claimed for the *Retinispora*, is that of having but two seeds under each scale; but in this, too, discrepancies have been noticed, for specimens of *R. obtusa* and *R. pisifera* have been observed with more than two seeds. As American botanists are not willing to accept Spach's genus *Chamæcyparis*, we shall undoubtedly have to fall back on the *Cupressus* family and consider them as Cypresses.

The new plant introduced into our collections under the name of *Biota Meldensis* of Lawson, has been involved in mystery. Some writers have contended that it was a hybrid between the *B. Orientalis* of Don and the *Juniperus Virginiana* of Linnæus; others, that it was the type of a new genus; but most Conifer growers acknowledged their ignorance of its history. Having obtained positive proof of its origin this season, by reason of a fully developed cone, we can now place it as a mere sport from the *B. Orientalis*.

Upon examining the leaves we find them exactly similar to those borne by its parent at a very early age; in fact, they are the first system of leaves common to the Arborvitæs, which, by a strange freak of nature, have not developed into the second or true system. A careful comparison of this plant with the young seedling of the Chinese Arborvitæ fully confirms this fact, not only in relation to the general appearance of this rudimental foliage, but in many other peculiarities common to the family, such as the pungent odor emitted, the proneness of the foliage to change to a reddish hue during winter, &c. The American Arborvitæ (*Thuja occidentalis*) is liable to the same sports, as is evidenced in the *var. ericoides* of Booth, and in the new seedling from the Mount Hope Nurseries at Rochester, N. Y., called "Tom Thumb."

In the arrangement of the genus *Thuja* we have long felt doubtful where to place the plants heretofore known as *T. Siberica* and *T. plicata*; but as they have now perfected seeds freely, we should have no hesitation in placing them as distinct forms of the *T. occidentalis*, notwithstanding they have hitherto been considered as species, and judged, I fear, more by their outward character than by any real distinctive qualities. *T. plicata* of Don has been so long known and favored with a specific title, that it is with considerable hesitation on my own part designated as a variety; but the fruit points unmistakably to the fact.

It appears from foreign works and catalogues that some confusion yet exists as to the proper title of *Taxus adpressa*—some considering it a *Cephalotaxus* and others a variety of the *T. baccata*—but as its history has been fully given in a previous number of the *Gardener's Monthly*, I only instance it here as an inducement for us to depend more on personal experience and less on the *hearsay* of others. My own study of this plant fully confirms its true specific character in a very marked manner.

Students of botany will also find that the outward forms of fruit will not always prove to be a sure guide in determining a species, but that a careful analysis of its various parts is absolutely necessary in every instance. Take the *Biota orientalis* for an example, and in the numerous varieties of this species we find an interesting study. Scarcely one of these sports but what produces a cone different in outward form from its parent, and yet no material difference can be distinguished in the seeds or flowers. The growth of these various plants are curiously unlike; indeed, so very manifest is the difference, that it requires a careful study to eradicate the idea of a specific title for each. And then again the fruit sports into such a variety of forms that we are puzzled to ascertain what one really constitutes the proper characters for a technical description; but through all these dissimilarities of mere outward appearance, which are so apt to sway our judgment, the more reliable tests contained in the seeds, as well as the interior arrangement of the cones, rarely fail to assure us of their infallibility.

Of late there have been numerous Conifers perfecting their fruit under cultivation, which have proven an interesting study to the writer, as it doubtless has to many others; but as the greater portion of these are correctly named, and not liable to be mistaken, it is useless to enumerate them here.

In concluding this subject I desire to offer a few remarks on the Great Tree of California (*Sequoia gigantea* of Endlicher), by way of illustrating the real value of knowledge when describing our trees and plants. Perhaps no one tree has ever been discovered which has caused more controversy than this; and as the subject has always been considered as "neutral ground," and one which admitted of a "free fight," I hope to be pardoned for expressing an opinion in regard to the same. Having carefully studied the mature cones, as well as the leaves, &c., of this tree, I have yet to find any grounds on which Prof. Lindley could base his oft-repeated assertions. Endlicher was undoubtedly correct when he annulled the names of *Wellingtonia* and *Washingtonia* and classed it with the *Sequoia* family. Our English brethren, although persisting in their new generic title for many years, are now commencing to see their error, for in Lawson's recent work it is called *Sequoia Wellingtonia*, which is Dr. Seeman's compromise. In a comparison of this species with *S. sempervirens*, the above author says:—"Every ground for holding the two trees to be generically distinct has thus melted away, and nothing remains but candidly to acknowledge that *Wellingtonia* cannot be maintained as a distinct genus." This is a great step gained, but we are very sorry

to see the same author stating that the specific name of *gigantea* cannot be used, as Endlicher had previously applied it to *S. sempervirens*. The sooner that such subsequent names as *Wellingtonia* and *Washingtonia* shall be completely abrogated, the sooner shall all difficulties cease, so that we can show to the world that the truths of botanical science will stand triumphant for all coming time.

GOOD GERANIUMS AND HOW TO GROW THEM.—NO. 3.

BY J. C. J.

(*Continued from page* 143.)

WHITE PERFECTION, (ZONALE.)

Good judges have pronounced this the best of all the White Zonales. It is excellent. After close comparison with some others, I have been led to suspect that, under four different names, we have one and the same thing in White Zonales. That this deception is practised by nurserymen in Europe I have no doubt whatever; or it may be they are, not unwillingly, duped by pretended raisers of novelties. The necessity in this age of competition for a succession of new sorts, is well understood and practised by professional florists in London. I imported Madame Vaucher in 1862; then came her near connection, "Emily Vaucher," with so close a family resemblance that any tyro may see at a glance they are identically the same. A charitable friend suggested that Emily might be the Christian name of Madame, but unfortunately the former was launched upon the wide world as a spinster of the next generation, destined to supplant her ancestor. About the same time another star rose in the East—"Mad'lle Marie Mezard," described as "pure white, in the style of Madame Vaucher; price £5" (sterling). "The style" is certainly what the vendor claims, beyond all dispute; but the resemblance is so very close that the distinction is minus a difference. A rival to these three names was "Carter's Snowball." On a jury I would be disposed to give that eminent firm the benefit of a doubt, as "Snowball" may possibly be an original and not Madame Vaucher, only I have failed to detect any difference. All four kinds I received direct from England, and for two years the utmost care was taken to guard against confusion or admixture in propagation.

White Perfection is, I consider, a genuine original. Although quite similar to Madame Vaucher, the flowers seem to me rather more circular and compact, and the foliage is slightly different. It is also a more prolific bloomer under glass. Last winter it did excellent service in my greenhouse. It is only there that White Zonales flower in perfection. Out of doors they yield me no satisfaction; trusses small and few in number; the white dingy, a poor apology for the clear, narcissus-like white of the same plants on the stage of a greenhouse. White Perfection and White Tom Thumb (see page 36) cannot be spared from the attractive features of in-door floral display during the coming winter and ensuing spring.

To flower bountifully and well, the directions on page 36 must be adhered to. The last shift ought to be no longer delayed. Avoid any check hereafter; permit no blooms to expand, and syringe during hot spells every other day. Until 1st to 10th of September full exposure to the sun is injurious. Partial shade from 11 to 3 P. M. is a positive advantage, but overhanging trees will not do.

EXCELLENT, (ZONALE.)

This Geranium was produced, if I mistake not, in 1863, but I don't remember to have seen it in the catalogue of any American florist. The English grower thus describes it: "Soft rose, a most beautiful variety; free, large truss, form good, extra." This is piling it on, but is no exaggeration. I would almost place it as next to Donald Beaton, for perfection of shape, size of truss, and its remarkably brilliant color, which is not strictly what I understand as "soft." It cannot be beaten; under glass and out of doors tells it own story among a score of Zonale competitors. I expect to recognize this favorite under some new name ere long. It is good enough to half justify the deception.

CARMINATA IMPROVED, (NOSEGAY.)

Who stood sponsor to this really choice thing I know not. This I do know, that I was agreeably surprised when it first bloomed with us in March last, the old-fashioned name and source from whence obtained not leading me to expect much. I have yet to see another of the Nosegay class its equal for brilliance of color, the best resemblance to which is Lobelia fulgens. Well grown bushy plants, for a front row on the stage, will give entire satisfaction; but if allowed to grow at random, they are unsightly with ragged blooms. It is better, also, grown in small pots. One of our leading florists, to whom I sent a plant, will probably offer it for sale next year.

ALICE, (ZONALE.)

"Soft, flame scarlet;" style of Princess of Prussia, but better. This variety is highly esteemed in England, from whence I obtained it two years since. So far as I know it is not in any of our American

catalogues, but ought to be, as it scarcely can be beaten. It grows compactly and blooms very freely, in and out of doors; trusses large, circular and full of blooms.

I shall report presently the qualities of some late novelties, such as "Glorie de Nancy," the finest Double Zonale raised so far, Mrs. Benyon, Sunrise, Sunset, Goldfinch, tricolor-leaved Zonale, said to surpass Mrs. Pollock, Souvenir de Sir Joseph Paxton, Crystal Palace Gem, Christabel, a charming miniature, Madame Werle, &c

GRAPES ALONG THE WEST BRANCH OF THE SUSQUEHANNA.

BY W. L. NESBITT, LEWISBURG, PA.

Mr. Editor:—There is a narrow strip of country along the West Branch of the Susquehanna river varying in width from one-fourth to three-fourths of a mile, the soil of which is deep and rich, in some places a sandy, in others a clayey loam. The sand generally preponderates along the river, the clay gradually coming in as you recede from it. The general surface is nearly level, with an elevation above the river of but about 20 feet.

Many years ago, when the section of country described was still a wilderness, it was noted for the great number and the luxuriance of the wild vines that grew upon it. Taking a hint from this landmark of nature, in the fall of 1864 your correspondent conceived the idea of selecting a favorable location and planting a vineyard upon it. The varieties chosen were chiefly Delaware, with some Concord and Diana, a few Ionas, and a specimen vine or two of each kind of any note at that time. A year later an acre more was prepared and planted, the varieties chosen this time being exclusively Iona and Israella.

Now for present results, and the promise for the future. The number of vines of some varieties is given in connection with remarks upon them, for the reason that the horticultural public has had enough of *general conclusions* based upon the performance of a *single vine or two*, and justly distrusts them.

One hundred vines of Concord, three years planted, fruit pretty heavily this year for the first. Six weeks ago I was proud of them. They had set a profusion of magnificent clusters, so large and fine; but the *rot*, that fell destroyer, has done his work among them. Half the berries are gone, and those fine bunches are but the wrecks of what they promised to be. The foliage indeed is safe—not a speck of mildew upon it. Would that the berries were as hardy.

The foliage of the Diana suffers very little from mildew; the vine is a strong and vigorous grower, and prolific; but the berries are quite uneven in size, ripen unevenly, and are usually very crowded upon the bunch. It is certainly not a first-class vineyard sort.

The Delaware vineyard contains 950 vines. The Delaware is a slow grower, and only about 600 vines made sufficient wood last season to bear heavily this season. Of these one-half were left on the stakes all winter, and were killed down to the snow line, the thermometer at one time indicating 25° below zero. The remaining 300 are bearing a most abundant crop of fruit, and are carrying it bravely through to perfection. The rot does not affect them, and the amount of mildew upon the foliage is so trivial as to be unworthy of attention. The deep rich green of the fruit leaves seems to bid defiance to this pest, and to assure the full ripening of the crop. It should be added, however, that my Delawares have not *always* escaped, nor have they *all* escaped the mildew this season. The great secret of success seems to be (the best possible position having been chosen for the vineyard) to keep it in a vigorous growing condition by thorough cultivation, and the careful tying up of the young shoots as they grow.

Of the Iona but few vines are in bearing this year, but next year I hope to fruit a thousand. The berries are now (August 15th) beginning to color very nicely. There is not, nor has there been, a rotten berry to be found upon any of my vines, and if the Iona maintains in future the character it is making this year, it will certainly be the leading grape with us over any now before the public.

Its foliage is said in some localities to suffer from mildew, but this is certainly untrue of it here. Your correspondent has enough vines of it to know whereof he speaks.

The foliage of Israella is less enduring than that of Iona, and it suffers a little, though but little. The vine is a strong grower, and it sets very pretty, symmetrical and compact bunches of fruit, and it will doubtless take rank as a valuable grape along the West Branch of the Susquehanna.

BRIEF MENTION OF PLANTS AND FRUITS.

BY W. L. AKERS, JOHNSTOWN, PA.

Strawberries.

Agriculturist–first on the list in size and productiveness—flavor excellent. Russell also first rate. The fine large berries piled up along the row. Hovey: Fine rich flavor but shy bearer, although planted

beside the W. Albany. Triomphe de Gand, is very fine; but not so regularly large as Agriculturist or Russell. Soil of the place on which the trials were made, rather heavy, but kept in good culture, results, upon the whole, most satisfactory.

Got "Keyes Early Prolific Tomato" from Messrs. Hovey & Co., of Boston.

Gave it all due care and attention, and the result is, a few days behind all other good sorts in place of "thirty days earlier."

The fruit is quite small, and upon the whole an inferior variety. The Tilden Tomato has sustained itself most admirably, and stands at the head of the list. If we could get a good Tomato, even ten days earlier than the good old sorts, it would be a great boon to our mountain region, where our summers are so short. Let us hope that by careful selection of seed and judicious experiments it may yet be found.

TO PRESERVE PEAS FROM WEEVIL.

BY J. S. COLLINS, MOORESTOWN, N. J.

In regard to "trouble with the Pea Weevil" with your correspondent in East Tennessee (spoken of in last No. of *Monthly*,) I would state that the New Jersey truckers, or market gardeners, in vicinity of Philadelphia, where early Peas are raised extensively, prevent the pea weevil from eating its way out, and consequently the destruction of the germ by sprinkling a little Spirits of Turpentine over the heap after winnowing, and stirring well before putting in granary for use the following spring. A quart of turpentine being sufficient for fifteen or twenty bushels of peas.

SULPHUR AS A MEDICINE FOR GRAPE VINES.

BY JAMES LAMONT, PITTSBURG, PA.

I am very happy that Mr. Newark still writes on the Foreign Grape. Makes mention of the two greatest pests in grape cultivation, the red spider and mildew. I am of the same opinion as Mr. N. Vines can be grown without sulphur. I have had charge of grape houses in this country for twelve years; and during that time I used the sulphur once, and mildew and spider did leave in "double quick."

I am satisfied if I had Mr. Newark, Mr. Miller and Mr. A. in a great air-tight grape house, and I to start the fumes of sulphur on them, and the doors locked, the three in-side, and Mr. Thompson and I out-side, we should have a good time looking in at them, during their "conviction time," that sulphur is sure death to red spider, and in coming out, instead of classing us with "mushroom gardeners who use sulphur," they would ask a prominent place amongst us.

Red spider will bring on diseases on the vine, therefore, I have called that a medicine, which will stop the spread of it, and that is sulphur.

I am sorry that Mr. Miller has made up his mind to be "cast back into obscurity," and to leave with his hat what every horticulturist in the length and breadth of the land ought to know. I will invite Mr. Miller to come out from obscurity and handle his own pen in the great cause of horticultural progress.

Allow me to correct a mistake of Mr. Newark. He thinks I did not understand him about the weight of grapes in his article; but I understand him fully. His own words are: "He, (Mr. Miller,) grows grapes to perfection, I saw two Black Hamburg clusters weighed. No. 1 was five pounds and a half. No. 2 was four pounds and a half. Who can excel? let him say? "This is in the November number for 1866."

Now in the June number for 1867, he says: "I said there were twenty pounds of fruit on the vine, and the largest cluster was five and a half pounds."

Neither Mr. N. nor myself can find that in the *Monthly*. I simply asked the question, did both of these bunches grow on the one vine? if so, and twenty pounds more, then I would say that that is good grape growing. (See the *Monthly* for February, 1867.)

Grapes, berries, measuring from three and a half to three and three-quarter inches in circumference, is certainly coming near to perfection in this country. Now, a bunch of Black Hamburgh, say four pounds, and all the berries three and a half inches in circumference, would be beautiful to look at. Can Mr. Miller do that this year? If he can, I would say to him through the *Monthly*, take or send that bunch to some great exhibition, and you will get a feather in your hat that will be long in fading. It will be sent to New York, Philadelphia, Baltimore, Washington, Cincinnatti and Pittsburgh, and all over the States. The *Monthly* will carry it everywhere for you.

I think Mr. Newark is right in saying that gardners spring up like mushrooms in this country, but we can "get along" notwithstanding we have so many small places among us just suited to such—to drive carriage and milk cows and so forth. Any gentleman that will give the wages to a good gardener, which such men do not expect, can have the benefit any time. It does not matter how often they may want them. I know many gardeners who have

left the profession for commercial pursuits, not because they were afraid of competition from "mushroom" gardeners work, but because they could turn their talents to a greater account than the most liberal gentleman could afford to give them as gardeners.

Some of these quick made gardeners rise to eminence; but yet how few compared with numbers from the best class?

Mr. Meehan is in business for himself. Mr. Saunders is in an honorable position at Washington. Henderson is on his own account. Mr. Bright has an eminent position as a landscape gardener. Mr. Jerome Graff is in business in Philadelphia. These men, here mentioned, all of them stood, perhaps, scrubbing flues and pots in a greenhouse. There are scores of the same kind all over these United States. "Mushroom" gardeners do not do that, and they do not reap the same reward. They fill an useful position, but they are not to be feared by those who can get more.

ON THE AGE OF TREES IN AMERICA.

BY "QUERCUS."

Recently returning from a trip to Europe, I was very much struck with the age of trees there, as compared with our own. There were very few large trees pointed out that was not supposed to be three or four hundred years old. The apple tree particularly, seemed to me to last much longer than with us. Certainly the apple does not last near as long here. I doubt whether there is any one hundred years old.

I have travelled consi lerably in western wilds, and noted particularly in Pine woods, the comparatively youthful appearance of the *aged tree*—that is to say, trees evidently old before their natural time; or at least before they would be under favorable circumstances, and which favorable circumstances seem to operate in other climates. Is it not worthy of a thought whether there is any thing in our climate unfavorable to longevity? and if so, what is it?

Enclosed is an extract from one of *Murray's Handbooks of English Travel*, regarding a famous oak at Cowthorpe in Yorkshire, from which you will see that nearly two hundred years ago the tree had commenced to decay, and its age must be enormous. I think no oak in this climate would live so long in a state of decay. I should be very glad if some of your readers who have examined the matter would give us some figure as to about how long the apple, oak, and other trees will endure in our climate:

"The true measurements of the famous Cowthorpe Oak are—circumference at 5 feet from the ground, 36 feet 3 inches; close to the ground, 60 feet; extent of the principal branch, 50 feet 6 inches; girth close to the trunk, 10 feet; height of the tree, including decayed wood, 43 feet; height of vigorous wood, 33 feet six inches. The tree contains 73 tons of timber, and the diameter of its hollow close to the ground is 11 feet. The trunk is quite hollow, but the branches, the largest of which are supported by props, still cover much ground and bear much foliage. The top branch fell about 180 years since. In 1718 a branch fell which extended 90 feet from the trunk, and contained 5 tons and 2 feet of wood. Before this fall, the Oak extended its shade *over half an acre.* In 1772 a branch fell which was 80 feet in length. The height of the tree in 1776 was 85 feet. * * * The soil in which the tree stands is a deep, rich, light loam resting on fine clay."

USES OF EVERGREENS FOR ORNAMENTAL PLANTING.

BY WALTER ELDER.

The uses of Evergreens in ornamental planting are manifold, and the numerous genera, species and varieties are ample for all our wants; flourishing in our climate, they fence in, and garnish the outer boundaries of the grounds, and enclose the various compartments with hedges, edge walks and beds; they clothe lattice work, unsightly walls and buildings, and carpet the earth's surface and rocks; they embellish and beautify the grounds at large, and give them shelter in winter; they shut out of view unsightly scenes, and hide us from vulgar glare; they make a pleasing contrast with the deciduous, and a diversity among themselves, by their various sizes and habits, and leaves of different forms and shades of verdure. Some delight in the dense shade of the forest, others crown the mountains brow, and bathe themselves in sunshine; the proud and lofty Pines, Firs, Spruces, &c., soar high towards the heavens; the meek and lowly Periwinkles and Epigœa crawl with their faces upon the earth; see the massive stems of trees and the slender shoots of vines, the gloomy sombre of Yews and Tree Boxwood; the lively green of Biota and the pale verdure of Cedrus deodara and Irish Juniper, the gold and silver stamped foliage of Accuba, Holly, Euonymus, Boxtree, Periwinkle; the broad leaves of Magnolia grandiflora; contrast with the narrow foliage of Libocedrus chiliensis, the broad transparent leaves of Kalmia, Mahonia, Holly, Rhododendron, &c.; contrast with the dull contracted foliage of Juniperus, Arbovitæ, &c. See the procumbent habit and flexible shoots of Cephalotaxus; and the

erect habit and unyieldable stiffness of Araucaria. Some grow in marshes and others upon dry rocks. If grass will not grow under large deciduous trees near to the house, plant Periwinkle, and it will clothe the surface with perpetual green, if grass fails under a group of deciduous trees, plant Kalmia, Rhododendron, Mahonia and Periwinkle; and when the trees are leafless, there will be a garden of verdure under them, and a pretty bloom from April till July. Ivy clothes walls, fences, &c., with never failing green. Chinese and Japan Honeysuckles and the hardy, yellow Jasmine clothe Arbors, Pillars, Verandahs, &c., with constant green, in the dark shade of buildings; where deciduous plants will not grow, plant Aucuba japonica, Euonymus japonica, Rhododendron maximum, Kalmia latifolia, Periwinkle, &c.; and they will make a garden of green all the year through.

We have Evergreens suitable for every special purpose of ornamental planting, and for every situation and exposure. No situation is too low, moist and shady for some species; and no place is too high, dry and sunny for others. How beautiful they all look when gracefully arranged, with their various shades of verdure. See the trees of gigantic growth, waving their emerald boughs in the breeze; the under shrubs, cowering in the shade, and creepers clinging to the ground. Deciduous trees, shrubs and vines, look beautiful when clothed with foliage and florescence; and gild the autumnal scenery with splendor, yet they lack the dignified richness, and lasting grandeur of real massy Evergreens.

ZONALE AND NOSEGAY GERANIUMS.

BY JOHN SAUL, WASHINGTON, D. C.

There is probably no class of plants that have been so much improved during the past few years as the Zonale and Nosegay Geraniums; from the old scarlets have been produced not only large finely formed trusses of bloom of the various tints of scarlet and scarlety crimson, but colors which a few years since was not expected in this class—as Salmon, Pink, White, &c., and there has now appeared among them some interesting and beautiful double varieties—I have been induced to write you from having just examined my collections, in which many new and beautiful varieties are blooming for the first time, among others that superb "Gloire de Nancy." In your pages at various times some of our finest standard varieties having been described double variety and their great value as summer bedding plants recommended; for blooming in the greenhouse during winter they are also invaluable, indeed many of the finer colors are only in this way brought out to perfection. With your permission I will describe a few of the newer kinds.

Among these interesting novelties DOUBLE GERANIUMS, I will only describe a few that have bloomed with me, remarking by the way that your readers may expect soon as great a variety among the double as single flowers.

Ranunculiflora plenissima, deep scarlet, very double the first in this class raised.

Triomphe de Gergoviat, bright orange scarlet white centre, a very beautiful variety.

Gloire de Nancy, an exceedingly beautiful variety, having large trusses of full double flowers—they have been compared to the blooms of the double Scarlet Lychnis—color a deep rosy carmine, very vigorous habits. This very beautiful plant cannot be too highly recommended.

NEW ZONALE AND NOSEGAY.

The following are particularly fine among the newer sorts.

Abd-el-Kadar, purplish blood color, very distinct, nice compact habit.

Beauty of Waltham, rich carmine, trusses of large size and abundant, a very vigorous grower and a most effective variety in the gardens.

Gloire de Corbeny, brilliant salmon, slightly margined with white, vigorous grower and profuse flower.

Julius Cæsar, color brilliant flame scarlet, free grower and good habit, very fine.

King of Whites, pure white, free bloomer, nice compact habit.

Leonidas, one of the largest flowers among the high colored varieties, color, rich bright red, very compact, free bloomer, excellent in or out of doors.

Le Grande, color brilliant crimson scarlet, shaded with purple, an immense truss—habit vigorous, and prolific bloomer, fine for bedding.

Napoleon, brilliant crimson, good habit, free bloomer, color very fine.

Phœnix, bright scarlet, fine color, compact habit.

Pink Stella, rosy pink, a beautiful variety for bedding, counterpart to *Crimson Stella*.

Rebecca, color clear cherry, fine truss, dwarf compact habit, profuse bloomer, and excellent flower.

Sir Joseph Paxton, orange scarlet, large flowers and truss, a fine bedder.

Wiltshire Lass, bright rosy pink, compact habit.

White Perfection, pure white, free bloomer, though not quite as new as most the above, it should not be passed over.

GARDENERS AND GARDEN MANAGEMENT.

BY WM. SAUNDERS, WASHINGTON, D. C.

Read before the Pa. Hort. Society. June 4th, '67.

I regret that my duties have prevented me from treating this important subject so fully as it deserves, and also that, even the few remarks that I am enabled to submit, are so fragmentary and desultory.

One of the earliest of gardening authors, writing in 1626, remarks that, "Honesty in a gardener will grace your garden and all your house, giving offense to none, nor calling your name in question by dishonest acts, nor inflicting your family by evil counsel or example; and concerning his skill, he must not be a scholist, to make show of or to take in hand that which he cannot perform."

The position of a gardener is in many respects, a peculiar one. Although he is too generally looked upon and treated merely as an operative laborer, yet there is a certain amount of responsibility attached to his duties altogether different from what is usually expected from that class of working men. Taking them as a whole, gardeners are more generally intelligent than those whose time is occupied in merely mechanical operations. The duties of a gardener compel him to study. He must think for himself, and be fertile in expedients on extraordinary occasions; and in cases of novelty, difficulty, or emergency. His mind must be well stored with general knowledge, and he must be assiduous in constantly adding to this store, by earnestly endeavoring to be informed of every improvement and invention not only in his particular line, but also lay up in his memory as many ideas as he can on all other subjects connected with the arts and sciences. From facts thus accumulated the mind is led to generalize, and trace up to their principles, the reasons for any particular practice; thereby he will be enabled to apply his knowledge to sudden emergencies or unforseen circumstances. Every day calls for the performance of some apparently trivial operation which is only in continuation of attentions periodically required for months, or it may be for years, to attain certain foreseen results, liable to be disarranged by unforseen circumstances, which have to be promptly met, and counteracted as far as practicable.

Therefore it is, that a gardener, if he means to keep pace with the progress of the age, must be a reading man. When no such propensity exists, he is of much less value to his employer. He must necessarily soon be left behind on the road to excellence, if he has not the laudable desire to peruse, at the least, those periodicals devoted to the interests of his professional operations. As to those who make it a boast that they "never read any of these papers," meaning to convey the idea that they have finished their education, they should be carefully shunned by those who desire that their gardens and greenhouses should be maintained in the highest perfection. It is only by the interchange of ideas that progress is accomplished, and the constant accessions to Horticulture in the introduction of new vegetables, flowers and fruits, as well as new modes of practice and working expedients, renders it an absolute requirement to be familiar with the channels through which such information is communicated.

I have already inferred that promptness is an indispensable quality in a gardener. If nowhere else, certainly in the garden, *delays are dangerous.* Plans must be matured in proper season, so that when the period arrives for their execution, nothing will interfere with rapid and intelligent action.

How many failures have been caused by the neglect of sowing seeds at the proper time? and here I may be allowed to remark, that many are not fully and experimentally aware of the vast difference it makes in crops, even when the periods of sowing are but slightly apart, more particularly in those of the earliest spring sowings, when so much depends upon the proper condition of the soil, and where a shower of rain may cause a week's delay, probably making all the difference between a success or failure in the crop.

Neglect in hoeing is a frequent cause of loss, or, if not altogether a loss, yet the crops severely injured, and even that partial crop secured at double the amount of labor required in destroying weeds after they have gained an ascendency. There is no point in garden management, when the results of procrastination are so insinuatingly expensive as in neglecting the early destruction of weeds. What may be accomplished by one hour labor to-day, if neglected for a week, may require ten hours labor, and at the same time the value of the crop has been depreciated fifty per cent. on account of the weeds, a loss that no after treatment or skill can repair. Occasions are constantly occurring where prompt action is all-important. A lawn may be divested of half its beauty for the summer, by a week's delay of cutting in spring. A few minutes spent in attending to a tree in May, by pinching out growing points, or rubbing off superfluous buds, may prove of incalculable benefit to the crop produced, and which, if left undisturbed, involves at some future time, the use of the pruning knife, and the destructive waste of the energies of the plant. The evil results of a

slight neglect in these matters are constantly accumulating, at least so long as growth is active. In the management of glass structures, and in all that pertains to the artificial forcing of plants and fruits, the constant necessity for active and rapid thought and action, is well understood by all who have had successful practice in that branch of gardening.

Economy in the management of a garden is a most essential requirement. This is also closely connected with administrative ability, since there is no expense that demands so much study and observation as that of labor, and its proper direction is an acquirement not always reached. No mere routine practitioner can ever become an economical manager. But it is not in labor alone that economy may be practiced. Bearing in mind that science is practice systematized, the more scientific the operator, the more apparent will his economy be seen in every department under his supervision. A good economical rule is always to do *first* what is most pressing.

Cleanliness we are told is next to godliness. A clean garden is supposed to be one of freedom from weeds. No gardener, I imagine, ever allows weeds to grow if in his power to prevent them, yet occasions may occur when a weedy spot may be left untouched for more pressing operations. For instance, a few weeds on a walk will not materially injure if more important matters require immediate attention.

We have seen gardens kept smooth and clean, raked and rolled to excess, while the plants suffered for deep stirring of the soil and thorough culture. So we have seen a housekeeper spend time in *cleaning up*, and treat her guests to a badly cooked dinner.

In close connection with the subject of cleanliness we may place that of insects. Constant vigilance will no more than enable the gardener to prevent the ravages of these real pests; but it is well to keep in view that prevention is better as well as cheaper than cure, not only in regard to insects, but also to some of the diseases of plants; and, although comparatively but little is known as to the origin of many vegetable diseases, yet what little do we know, and such remedies as have proved useful, is knowledge that should be acted upon as soon as first symptoms become apparent. Mildew for instance, we know can be prevented by sulphur applications, we should therefore use preventory measures on plants that experience has shown to be liable to this malady. If out door plants, by dusting them early and repeatedly; and in the case of plants under glass when artificial heat is used, by washing the heating apparatus with a mixture of lime and sulphur.

In summer, when the heating apparatus is not in use, the same effect will be gained by washing underneath the staging of the greenhouse, or any other wood work that can be so covered, with a wash of lime to which has been added two pounds of sulphur to each peck of lime; this will also prevent the red spider from making its appearance, where it is not convenient to do so by mere syringing with water. The Aphis can be kept under, as also the thrip by frequent fumigations of tobacco. These are all well known remedies, but not always used previous to the appearance of the objects of their destruction, which is the main reason for here alluding to them.

I have already remarked that the position of a gardener is in some respects peculiar, and as his efficiency depends very much upon a proper understanding between him and his employer, I may be permitted to allude to some of the more prominent causes of dissatisfaction which occasionally occur to the injury of both parties.

One of the most frequent complaints of employers is the overbearing tendency of some gardeners; this arises, in most instances, from a dislike of being interfered with in their management of the details of their operations. It is certainly very mortifying to a gardener who has made a plan, after careful study, to have it interfered with unnecessarily, merely to gratify what may be a mere whim on the part of his employer, more particularly when he sees plainly that such interference will have an injurious effect upon the objects of his charge; also fully aware that all failures, no matter from what causes, will be carefully placed to his account. While I have had cases brought to my notice where very great injustice has been done the gardener, I have also observed that in the majority of them a slight concession on his part, or a calm and judicious explanation of the *rationale* of his course of action would have amicably settled all differences of opinion. No intelligent employer will desire to work against his own interests, when once they are fairly presented to him, and it is certainly unjust to hold a gardener responsible for results that have been produced from circumstances over which he has not been permitted to have any control.

As it is well in affairs of this kind, as, indeed, it is in all others, to trace results to their proper sources, I may mention one that exercises much influence with employers; I allude to the *advice gratis* gentlemen of whom more or less are to be found in every community.

I have had considerable experience with this class of philanthropists, some of it rather amusing than otherwise. Not many months since a gentleman called on me, and submitted several letters of introduction, endorsing his knowledge in chemistry and vegetable physiology. After some preliminary introductory remarks, intended to impress me with the great importance of his mission, he commenced to read from manuscript an essay on plant propagation. I was struck with the familiarity of the expressions, and soon discovered that I was listening to an article that I had prepared, and which was published in one of our Magazines about fifteen years ago. Luckily I could produce the printed copy which ended the reading. This is an illustration of the class I allude to, and they are very troublesome in some neighborhoods, causing great annoyance to those who have not the persistent loquaciousness necessary to fairly meet such self-confident novices.

It is the subject of remark that during the past few years, there has been announced several *inventions* in horticulture mainly connected with plant propagation. We are not perhaps warranted to say that any great advance has been made by these discoveries, either in explanation of the principles, or their practical application to plant propagation. I allude to it in connection with our subject, because I know of more than one instance where these inventors, in their excess of zeal, have attempted to throw odium on gardeners who would not regard their frivolities with favor, and sanction their pretended claims.

It is very far from my purpose to even hint at anything that would for a moment lead to the supposition that I consider further improvement impossible in these matters, but improvements can only result from a thorough knowledge of the subject, and even a slight acquaintance with vegetable physiology would tend to prevent the promulgation of such puerile conceits, but we fear that it will yet be some time before even that slight knowledge will be a general acquirement.

It is not uncommon for employers to remark that they do not wish a *fancy* gardener, meaning thereby that they desire mainly the substantialities of a garden, as distinguished from the merely ornamental. It is a fact that some gardeners consider vegetable and fruit culture as subjects beneath their capacities. These men delight to cultivate flowers and ornamental plants, and may exhibit great skill in their management, but profess that their acquirements are too valuable, and their time of more importance than to be consumed either in the vegetable or fruit garden. This is undoubtedly a great mistake, and in no sense greater than when acted upon under the supposition that superior skill is required in the greenhouse to that called for in these other departments of a gardeners care. While I profess to a degree of admiration and appreciation second to none in beholding a well managed greenhouse and specimens of superior plant culture, yet I venture to assert that a greater amount of skill, foresight and discrimination is required, in order to attain the highest perfection in the products of the fruit and vegetable gardens, than is required in the greenhouse; at the same time I think there are but few who excel in the one case, that may not equally excel in the other, certain I am that the best plant growers that I have known, were also eminent for their fruit and vegetable productions. There is no reason why it should be otherwise, since the principles involved are equally applicable to all, and the experience necessary for their application is not of difficult attainment.

Before closing this very imperfect treatment of the subject. I will merely mention that it is well understood among gardeners of experience that a *new* place is especially precarious. By new place I mean that where a gentleman for the first time employs a gardener, who has but a faint idea of what to expect, and whose exactions are of the most wonderful character. Of course all are not alike, but the rule has become somewhat fixed that they are very uncertain.

KEEPING QUINCE CUTTINGS THROUGH WINTER.

BY T. T. SOUTHWICK, DANVILLE, N. Y.

I never had cuttings come out so finely as when kept this way:—Place a layer of swamp moss (the kind mostly used for packing trees) in a box, then a layer of cuttings, and so on.

The moss should be nicely *damp*, not wet. It is better than sand, as being less apt to rot the buds during winter. Place the boxes in a cool cellar.

I also use Pine saw-dust for packing away Apple Grafts in winter. They keep much better than in sand,—coming out, in spring, brighter and fresher.

The Gardener's Monthly.

PHILADELPHIA, OCTOBER, 1867.

☞ All Communications for the Editor should be addressed, "Thomas Meehan, Germantown, Philadelphia," and Business Letters directed to "W. G. P. Brinckloe, Box Philadelphia."

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LAWS OF VARIATION.

There are few subjects which are receiving more attention from scientific men in Europe and America, than the laws of variation, and to the intelligent Horticulturist particularly, as bearing on the identity of varieties and many other matters of similar import, the question is a particularly interesting one.

By noting facts, probably what now seems a mere matter of chance, will in time be found to be as well established by law, as many such cases have been.

Some months ago we referred to a ring leaved willow on the ground of Charles J. Wister, in Germantown after twenty years, producing a branch of the common weeping willow from which it originally sprang.

In the July number of *The American Journal of Horticulture*, we notice that Mr. W. C. Strong, records a parallel case in a curled leaved willow on his own ground.

We are very apt to say in such cases, that the tree has merely "reverted to its original form," but this explains nothing. "From nothing, nothing can come;" and the germ cell or vital principle to produce a change of form must either be inherent in a dormant form, or the new form must be specially created about the time we first see it. Most philosophers suppose a new form to be a sort of special creation, but these instances of reversions to old forms after so many years of departure, would seem to indicate that form exists in germ cells which float along with the individual awaiting the fiat of the omnipotent to develope into existence.

It will be a remarkable thing if some future Darwin should be able to demonstrate, that the seeds of change exist in the individual from the first creation of the species, always on hand ready to aid the individual, in its struggle for existence; those seeds, developing which many aid it, and those forms dying away which have served the plants purposes.

We think our English friends in accounting for variation place too much value on hybridization, and too little on natural laws of evolution. It is not even necessary to show a necessity for a particular form being essential to a plant's existence. Nature is a spendthrift of the most stupendous kind. She fills an oak tree with thousands of acorns for every score she is able to get to grow into young trees, and the poet has well expressed it in the idea of the numerous flowers—

> "Born to blush unseen,
> And waste their fragrance on the desert air,"

and so with form, nature varies it in a thousand ways for no object that we can see, except that out of the greater abundance shall be the greater chance of some being on hand at the right time wanted.

This long existence of dormant germ cells of form, for we know no better way to express the idea, we saw curiously illustrated recently at Flushing, on the grounds of Parsons & Co. Every intelligent nurseryman knows that when he raises a lot of seedling Norway Spruces, Arborvitæs, Hemlocks—indeed of any evergreen—there are always some with startling peculiarities, especially in growth. Some are very vigorous, others are "dwarf." In this way, all the dwarf evergreens have been produced, and amongst Norway Spruces, the *Abies Clanbrasiliana*, a very dwarf form, is well known. In Parsons' collection, a row of perhaps half a dozen Clanbrasilianas have started to grow as strong as the ordinary Norway Spruces, — plants raised from cuttings, as Mr. Trumpey, the very intelligent propagator assured us. These plants are now about five feet high, and exactly like any common form of Norway Spruce. The return of this variety to the original is still more remarkable than the Willow case; because, as only a female form of the common Weeping Willow is known in cultivation, the curled leaved Willow is only a sport which has probably sprung out of the Weeping Willow stem, and been preserved by cutting; and every propagator knows there is generally a tendency to "revert," in plants of varieties so raised. But here is a case where a variety raised from seed reverts to the seed parent form, and the germ cell must not only have existed in the structure of the individual for many years, as in the willow, but have passed through all the processes of fertilization which the seedling form has to undergo.

It seems to us that such instances as these should be of great use to students of the law of the evolution of form. To us it seems that even the necessities asked for by Darwin are not essential to produce new forms. The germs of form exist in the plant, develop and have existed from the beginning of all things, and develop by the plants own innate power chiefly, aided a little by the external circumstances

which come out in the "struggle for existence." After they are developed, then circumstances either favor or obstruct their preservation. This is a mere hypothesis, but one which seems warranted by the facts we have adduced.

LILIES.

Most of us can remember when the beautiful Japan Lilies were regarded as greenhouse plants, and fully as tender as the tuberose. A great step gained was the knowledge of their entire hardiness—and for the persistent keeping of this fact before the public, our lovers of Lilies are mainly indebted to Hovey & Co., of Cambridge, Massachusetts, who are to be regarded as the pioneers of out door Lily culture and improvement in the United States. Still the prices ruled high until a few years ago the Brills' of New Jersey undertook their propagation on a large scale, by breaking to pieces the scaly bulbs; and since then the prices have fallen from $2 or $5 to about 50 cents, and now no boy can be more urgent for "stamps," than the Florist is for varieties of the Lily family.

It is singular how the notion ever prevailed that any of the Lily family should be tender, for they are confined to the cold and temperate parts of the world—none of them entering the tropics. The Lilium Caroliniana scarcely, if it all goes beyond the tropical line in America; while in Asia the Lilium giganteum exist in just about the same line of latitude as the Carolina Lily in ours.

The L. giganteum is, we believe, still regarded as tender by Horticulturists, but a trial might find it as hardy as L. Carolinianum.

A few years ago we had scarcely a dozen kinds of Lilies in cultivation, but the ease with which they can be hybridized—their tendency to vary from seed independent of hybridization—and the many new introductions to gardens from their native places of growth, have made them numerous; and the increasing taste for them, will soon make them as plenty as Gladioluses. The distinction between one species and another, is already broken down, and the whole genus has become beautifully mixed up. For the purpose of the cultivator they can be divided into three classes. Those with pendulous flowers reflexed petals of which the *Lilium Colchicum* (Fig. 1,) may be taken as a type; Trumpet shaped as in *L. longiflorum*, (Fig. 3,) and cup-shaped as in *L. croceum*, (Fig. 2.) In this variety of form they have a great advantage over the gladiolus, which has but the single point of color to favor, while besides the variety of form the fragrance and beauty of the Lily, will always give it superiority.

The Lily likes a rich warm garden soil—one that is never absolutely wet, and which on the other hand will never dry out in the hottest weather. They love to be replanted every year, and this should be done immediately after the flower stems die in the autumn. They then commence to push out new fibres for another year, and require all the time possible between their ceasing to bloom and the next year's season to prepare for a strong flowering condition. Some think it essential to take them up and dry them awhile before replanting, but this if not a positive injury is at any rate unnecessary.

Our five American Lilies, (*Canadense*, *Superbum*, *Philadelphuum*, *Catesbœi* and *Carolinianum*, vary just as much as the foreign ones; and if care be taken in making selections, a fine collection could soon be made. Examining a meadow full of *L. Canadense*, near West Chester last summer, no two of the plants we found had flowers marked exactly alike. And in two roots, taken at random from a wood of *L. Superbum* last year, and flowering this year in our garden, we found that while one had blooms of a rich crimson, the color of the other was a yellowish brown.

As a guide to the cultivator, we have been looking about for the most complete list of varieties or species already in cultivation. In American catalogues, the lists are so variable, if one has a dozen and another a dozen, they seem to be nearly different. The best European one we have seen is, that of Haage & Schmidt, at Erfurt, and as they have correspondents we believe in the United States, no doubt they can be mostly had of any of our leading seedsmen who deal in bulbs, if ordered in advance.

The following is their list:—

auratum,
Brownii,
bulbiferum,
" aurantiacum praecox,
" splendidum,
" umbellatum,
Buschianum,
camschatcense,
canadense,
" luteum,
candidum,
" fl. pleno,
" fol. argent. var.,
" " " fl. pleno,
" " aureis var.,
" maculatum, (striatum),
" speciosum,
Carolinianum,

Catesbæi,
chalcedonicum,
" fl. luteo,



COLCHICUM, (*Fig.* 1),
concolor,
corallinum ?
cordifolium, (not giganteum),
Coridion,
coruscum?



CROCEUM, (*Fig.* 2.
" aurantiacum major,
" " minor,
" praecox,
" sibiricum,
" tenuifolium,
davuricum, (spectabile),
excelsum, vide testaceum,
eximium verum,
fulgens (astrosanguineum)
" Incomparable.
giganteum.
lancifolium (speciosum) album,
" " " novum,
" " " praecox.
" corymbiflorum album,
" " punctatum,
" " rubrum,
" macranthum,
" monstrosum album,
" " rubrum,
" punctatum,
" purpureum,
" rubrum,
" " Florum (v. Sieb.)
" " magnificum,
" " nobile (Byls),
" " superbum



LONGIFLORUM, (*Fig.* 2.)
" eximium,
" foliis variegatus,
" Liukiu,
Martagon,
" album,
" " punctatum.
Martagon punctatum elegans,
" " superbum,
" purpureum,
" " flore pleno,
" " striatum,
monadelphum.
neilgheriense.
pennsylvanicum.
penduliflorum altissimum.
peregrinum.
philadelphicum,
pomponicum.
pulchellum.
pumilum (non tenufolium.)
puniceum.

pyrenaicum luteum.
" rubrum.
Sarana (Sarana camtschatkensis.)
sinicum.
spectabile vide davuricum.
staminosum.
superbum.
" pyramidale.
Takesimae
tenuifolium.
testaceum (excelsum, Isabellinum, peregrinum), stark.
Thomsonianum (roseum.)
Thunbergianum.
" asamidoli.
" atrosangineum maculatum.
" aurantium multiflorum.
" aureum.
" " maculatum.
" " nigro-maculatum.
" citrinum.
" Feu Kwam.
" grandiflorum.
" hybridum.
" latimaculatum.
Thumbergianum pintum,
" roseum,
" variegatum.
tigrinum (sinense,)
" angustifolium,
" erectum,
" japonicum,
" laciniatum,
" praecox,
umbellatum,
" atrosanguineum,
" bicolor,
" citrinum,
" cruentum,
" formosum,
" immaculatum,
" macranthum fulgens,
" marmoratum grandiflorum,
" punctatissimum,
" splendidum,
" vitellinum maculatum,
venustum,
Wallichianum.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

MALE AND FEMALE STRAWBERRIES—"*Duke*," *Cincinnati, Ohio*, says: Talking recently with an intelligent English gardener, I stated that the distinction between hermaphrodite and pistillate flowers in Strawberries was first discovered in the United States by an old German woman of this place, and first made known to the horticultural world by the late Nicholas Longworth, of Cincinnatti. In support of the fact that nothing of these distinctions were known in Europe, I referred to the fact that both Linnæus and the late Dr. Lindley ignored their existence. The English gardener asserts that this is not so, that male and female Strawberries are well known in England. Am I right, or is he?

[The writer combatted this notion during the lifetime of Mr. Longworth, and so often since, that we are nearly tired of saying anything more,—but it shows how hard it is to eradicate an error when once it gains a hold on mankind. Briefly then again we say, that the knowledge of male and female Strawberry plants was known in England probably before Mr. Longworth was born. In the Horticultural Transactions it is related that Keen, the great Strawberry raiser, and originator of Keen's Seedling, over sixty years ago, got enormous crops from his pistillate beds, by planting about one male to every ten pistillate plants. As for Dr. Lindley, we believe he never cared to argue much about any facts brought to his notice from this side of the Atlantic,—and really we cannot much blame him, when we look back and note the many ridiculous notions which even apparently intelligent journals have been found to sustain. It has been the misfortune of American Horticulture, and to a considerable extent is so yet, that it is saddled with writers who, like one who once sought a position as sub-Editor of the *Gardener's Monthly*, urged as a recommendation, that he possessed the talent of writing "first class articles on subjects he knew nothing at all about;" and 'facts" from such authorities have no attractions for such minds as "Lindley," or "Linnæus." Though your gardener is right, and you wrong on the historical question, Longworth's discovery was no doubt independent of any knowledge of priority in others. And he deserves great credit for announcing it as he did; for it made a revolution in straw-

berry growing around Cincinnatti, and gave that impetus to Strawberry growing in the United States, of which we are all now so justly proud.]

Strawberry Runner Cutter—*Mr. E. D. Dickerman*, sends us an implement and the following note: Wherever the Strawberry is grown in hills, the implement will be found very handy: "I forward you by express this day one of my newly invented Strawberry Runner Clippers.

In the cultivation of Strawberries on my own farm, I have found this implement of invaluable service, as it removes all runners from each plant at a single operation, and I find from experience that I can thoroughly clip an acre of over twelve thousand plants in two or three hours. It will be apparent to you that as a labor saving implement, this has great advantages over all others now in use for cutting runners, and no extensive cultivator of strawberries can afford to be without it."

Fine Bunch of Grapes—Weighing three lbs., and appearing to be of the "Barbarossa" variety, has been received from Miss H. Trimble, West Chester, Pa.

The berries are very large, and do *not* corroborate the views of Botanists, that the size of the berry depends on the number of seeds, for none of these have more than three seeds, and many but one, two being the average number.

Arborvitæ Cuttings.—Somebody without name or locality asks the following: "You would much oblige a constant subscriber to the '*Gardener's Monthly*,' were you pleased to give a small chapter on the propagation of Arborvitæs, by cuttings. Which is the best time to make the cuttings, how long should they be, and what kind of soil is best?

If Arborvitæ Cuttings were planted in a cold frame—or without a frame in a sheltered place would they grow in spring? Which is the best way, and what time, ought I plant Arborvitæ seeds—as I can get any quantity of them. Please excuse this long inquiry.

[Arborvitæs grow readily from cuttings under certain circumstances. The best way is to cut them into lengths of about three inches, insert them so as just to about touch one another, in shallow boxes of sandy soil, in October, and put in a moist greenhouse where the temperature can be kept above 55° all the winter. They will then be rooted nicely by spring, and may in May be set out in a piece of rich soil.

If you have not the command of heat, they may be set out in a cold frame, the sides of which are banked up with earth to keep out the frost, and heavy straw mats put on to keep out the severest weather; but they do not root so well this way, and often have to stay over one season before they can be set out in the open ground.

Seed must be sown in Spring as early as possible, and when up, shade with brush-wood to keep off the hottest sun.

We do not want the names of our correspondents for publication, indeed we seldom take up space by giving them in full, but we can give better answers when we know at least the localities.

Ants in Flower Beds.—*Constant Reader, Astoria, N. Y.*—"We are very much troubled with black ants in our flower borders. They come first from the grass on the lawn, and have taken possession of one border, and I fear unless we can kill them will all the others. I looked over the three first volumes of the '*Monthly*,' to see what to do, and tried the hot water and sulphur, but without success, as they were in full force again in a few days. Is there anything can be done to get rid of them? If you can inform me, you will greatly oblige."

[Try a little coal oil.]

Packing Flowers.—We received some flowers from Mr. Wilson, of Washington, Pa., which came in a most perfect condition They were simply inveloped in oiled silk, and put in a tin box, by mail. Evaporation being thus prevented, they would no doubt keep several days. Some put them in dry cotton and thin paper boxes, and they look like crushed bugs more than a plant by the time they reach us.

Norton's Virginia and Ives' Seedling in New Jersey.—*A Correspondent from Atlantic County*, says: "The season has been very unfavorable to grape growing in this part of New Jersey. Mildew and rot have fearfully damaged our vineyards, the Catawba is nearly all gone. Concord is damaged, but the reputation of the Virginia Seedling has proved true, as a lot of bearing vines that I have, does show, there is not one faulty berry among them, and the leaves, that suffered somewhat in spring have entirely recovered. This cannot be said of the so much celebrated Iona.

Another kind, and which seems *most hardy*, is the Ives' seedling. Its leaves have not suffered in the least, and a few grapes that I got at first, prove this fruit, this year, perfectly healthy.

Sprouting Holly Seed.—*C. H., Egg Harbor City.*—I have repeatedly tried to raise hedge plants from the seed of the holly, but did not succeed. What process would you follow.

[It must be mixed with earth and kept to rot one year before sowing.]

Norway Spruce Hedge and Cattle.—*A Harrisburg, Pa. Correspondent*, says: "But so far as *young hedges* are concerned, he can say that cattle will utterly destroy them—as he has learned from sad experience; and, that if they will turn cattle at all, it can only be after years of existence have given them a hard woody texture; and even then from his experience, he fears cattle would make them look very unsightly."

Evergreens for Wind Screens in Sandy Soil.—*S. A., Cinnaminson, N. J.*—"I would like to inquire of you or your readers, what would best answer the purpose of a protection from heavy winds on light sandy soils, such as blow to serious disadvantage during winter and early spring; whether evergreen or deciduous trees. A quick strong growth is most desirable; and, if evergreens, what varieties that would be cheap enough, and what time to transplant in spring.

[The Scotch Pine grows remarkably fast in sandy soils, is cheap and easily transplanted in your latitude in April. They can be planted tolerably thick to form an immediate Wind Break, and the thinnings, as the plants grow, will be a source of profit, as the timber is good.]

Variation in the Dahlia.—*J. B. W., Washington, Pa.*—I send you by this mail, a few flowers from a Dahlia I have had some years. Owing to a very dry spell of weather just past, these specimens are not as fine as I would wish, some are of *imperfect form.* Generally the form is perfect, and scarcely two flowers are alike, unless in dry weather. I find there are a good many light colored ones; sometimes the flower is one half Maroon and one half Rose color divided equally in the middle, but generally, the two colors are interspersed.

I have never seen such a Dahlia described, and therefore concluded it was a sport. The first year I had it, I was under this impression, and thought it might settle down to *one* color or the *other*; this is the third year I have had the variety, and it is still true to the *variety. I* have now three stocks blooming. If it is anything out of the common way, you can notice it if you think proper. I hope the specimens will reach you safely. A vase of this variety attracted a great deal of attention at our Agricultural Exhibition last year.

[Parti-colored Dahlias often behave this way. When there are two colors in a flower, the flowers sometimes come all the one or all the other. It is a beautiful variety of the Lilliputian style of Dahlias, and they would naturally attract great attention anywhere.]

Names of Plants—*F. R. Lipton, Ind.*—1. I have found in the southern part of the State, in rather wet places, a bulbous plant, resembling somewhat the Amaryllis; the bulb sometimes three inches in diameter, Amaryllis-like leaves and a white flower, the corolla of which is entire, not consisting of single leaves, (comparable to the flower of Convolvulus major.) What is the name of this plant?

2. In the same section of country, I came across a climbing plant with pinnated leaves, (five to seven leaflets in each,) running ten to twelve feet high; the root of which resembles in shape a potato, but has a rough skin, and is of a woody texture; as it was not in bloom when I saw it, I cannot describe the flowers.

Is not that the Apios tuberosa?

3. What botanical work could you recommend me from which I could in future draw the information I have now to ask of you?

[1. Pancratium rotatum.

2. Perhaps Apios tuberosa, especially if the roots were rather small potatoes.

3. Gray's Manual of Botany for plants north of Virginia and Kentucky, and Chapman's Flora of Southern United States for plants below that line.]

Pears in Grass.—*Pyrus, Vineland, N. J.*, says: "I would like to get a clear idea of your system of cultivating pears in grass. The idea, if *sound* must be important; but my own views and experience are so opposed to it, that I think perhaps I have not fully understood you. If I can raise a crop of red clover every year in my own orchard, not only without injury, but with decided benefit to the trees, it is certainly very desirable to do so.

Will you fully describe the process step by step for say five years, from the planting of the tree? or otherwise name the particular articles in back numbers of the G. M., where it may be found. In making my lawn, I have encroached somewhat upon the pear-orchard, and I can see a marked difference *against* the trees in grass, in growth, productiveness and quality of fruit.

I am interested also in the subject of "unfruitful

blossoms." My Duchesse trees bloomed very full and I have as the result, about sixty pears on a thousand trees. Bartlett, L. Bonne and B. Goubalt, are loaded with fruit. Is it not a rule that trees which bloom the fullest, set the fewest fruit in proportion to the number of blossoms. I noticed it in the apple and cherry.

What is the remedy? I am going to try closer pruning in early spring, cutting off two-thirds of the fruit buds.

[Your lawn is not kept mown very often we guess. You cannot take off a crop of clover and a crop of Pears, and expect the same as if you had no clover and all Pears. But, if you top dressed heavy after taking off a crop of clover, returning as much food to the soil as you took away in clover, you could do it very well; but even then, you must mow away around the trees several times a year, taking no crop from under the trees. If grass grows its full length under the trees, the *roots of the grass grow strong in proportion to the strength of the top, and hence dry out and starve out the roots of the fruit tree. The grass tops must not be suffered to grow long, or the grass roots will run deep.* Unless this principle be clearly understood, it is no use to try to grow young trees in grass.

Unproductive blossoms results from weakened vitality. Severe pruning weakens vitality, though stimulating an immediate strong growth. It will not help you much. Cutting off many of the flower buds may help the remainder, but this subject is so new that we are unable to give any advice from personal observation. We would rather have the results of your own experiments when made, to help us to a sound practice that we can recommend.]

Quercus Sanguinea.—*N. S. Brandon, Vermont*, writes: "A friend saw, a couple of years ago, what he said was a beautiful blood-leaved oak, in the German Garden, which he said was called *Quercus Sanguinea.* I ordered a few, but they seem to be nothing but the common Red or Scarlet oak of our own forests. Is there any such thing as a blood leaved oak?

[There is a variety of *English* oak, (*Quercus pedunculata,*) which is in some European catalogue called *Sanguinea*, and in others, *Atropurpurea,*—the last being most appropriate as the leaves are dark purple like the Beach

A single tree was found many years ago growing in the Lauchner forest near Gotha, in Germany—but it has been found very hard to propagate, and hence plants of it yet bring high prices in Europe.]

Succession of Peaches.—*R. B., Gettysburg, Pa.*, asks: "Would you please give us a list of the best Peaches ripening in succession that would do for this latitude?

[We hardly know,—so much depends on local causes—what will do *best* in the vicinity of Gettysburg, but name the following as what we should try there if we were to begin to plant. If any one can improve the list, we should be obliged. First to ripen early in August.

1. Hale's Early.
2. Troth's Early.
3. Large Early York.
4. Crawford's Early.
5. Old Mixon Free.
6. Crawford's Late,—but we are not sure *Stump the World* would not do quite as well.
7. Late Rare Ripe.
8. Smock.
9. Late Heath.

These will make a regular succession in the order named until October.

Bignonia Radicans.—In a private letter, Dr. Seeman says:—"I am just now interested in *Bignonia radicans.* There are two distinct species in the United States,—differing in the seeds. One of these was called *Minor*, and has disappeared from English gardens. This latter I have called *Campsis Curtisii*, and the other *Campsis radicans.*—Campsis is an old genus to which these plants belong rather than to Bignonia or Tecoma."

Forcing Strawberries.—*Reader, Sharon, Ohio.*—The simplest way to force strawberries, is to plant them now under hotbed sash—of course facing the sun, and if on a southern slope, all the better. This will advance them three weeks.

Beurre Clairgeau as a Dwarf.—*T. T. S.* well says: "I notice that a writer, in another Horticultural Medium in an article on Pears says, "the Beurre Clairgeau makes a fine Dwarf." I think this a mistake. I doubt whether this variety of Pear will succeed, except it be double worked. Worked on the Quince stock direct many trees will blow off, and others break in digging and handling. This shows it does not make a good union. The fact of its being called for on Quince, makes me refer to it."

Varieties of Peaches.—We think the greatest number of varieties grown by any one man for the sake of studying the kinds, is the collection of Mr.

James A. Nelson, of Indian Run, in Mercer Co., Pa. He has 125 varieties. Who has a greater number?

Judson's Wood Tree Labels.—These seem to be made of very good wood, are notched as in the times when labels were all hand made, and do not seem so liable to have the corner break away and let the wires slip off as some labels do.

Letter from Mr. Hacker. — *Philadelphia*, 9-20,-'67. Thomas Meehan, Germantown. Esteemed Friend: My attention was called by note from J. E. Tilton & Co., Editor of *American Journal of Horticulture*, Boston, to an article in the last number of the *Monthly*, in reference to a circular sent out by them with my name attached. (Having been much away from home. I only received the *Monthly* this morning, on sending for it.) In reply it is but justice in me to say, that although the circular was "as you say," *not written* by me, *it was* sent out under *my authority* and *with my circulars enclosed* to a list of names given by me. I do not desire to be drawn into any newspaper controversy, my interest and desire being only to extend and strengthen the taste and love for Horticulture and the kindred sciences.

I remain very truly, yours,

William Hacker.

[With "Dear Sir" at the head of the letter, instead of Mr. Hacker's usual "Esteemed Friend," we were quite sure our friend could never have seen that circular, and the present letter intimates that we were correct; but Mr. H. did authorize his name to be put to a circular he never saw.

So that the public understand that these "golden opinions," of new Horticultural productions, are manufactured to order, and authorized chiefly as a matter of business to get catalogues circulated cheaply, we can have no objection.]

Fruit by Mail.—We get very often specimens for an opinion, or for names, through the mail in *paper boxes*. Our friends forget that *tons* of pressure go with the mail bags. We rarely receive anything in paper boxes that is not mashed to a jelly, and beyond all recognition.

Orthography and Pronunciation of Papaw. —In a recent number, a correspondent inquired for the origin of the term Papaw, as applied to the Anona fruit, and the authority for the orthography "Paw Paw." The latter we could not answer. The September number of the *American Journal of Horticulture*, quotes Dr. Kirtland as authority. Dr. K. has no doubt been led astray by the Western pronunciation, "Paw Paw" which is wrong. The correct pronunciation is Pa-paw, just as spelled, which is also the correct orthography.

Our neighbors are trying their hands at correcting terms long in use, and they might as well have this one right. They have recently taught us to say "Cypripedia," instead of Cypripediums, because it should be so in the plural if we were talking Latin. We shall be very glad if they will tell us how the Indians form the plural of *Papaw*. It must no doubt grate harshly on their classic ears to hear people say Papaws.

Van Houttes Flore des Serres.—*H. G. W New Philadelphia, Ohio*, asks: "Whether Van Houtte's Flore des Serres et des Jardins de l'Europe is translated into English; if so, where can I get it."

[There is no English translation, but one can soon learn to read, if not to talk French; and it is a very nice thing to have in a family for that reason, as furnishing a pretty stimulus for the young members, by its beautiful plates, to learn the language.]

Adaptation and Non-Adaptation of Varieties worked on other than their own Roots. —*T. T. S., Dansville, N. Y.*—"Will the Editor give to his readers a lesson on the subject? Give the *principle* that governs the matter. We know that many varieties of Pear prove a failure budded on Quince, while others do well. That some varieties of Plum grow well budded on Peach and others not at all. For instance, Imperial Gage takes bud and grows finely. While Lombard proves a total failure. Some kind of Plums doing well on the Dwarf Plum stock, others not at all, &c., &c. If there is any *guiding principle*, it ought to be known."

[We should be very glad if some one would *tell us* the principle. We have never succeeded in getting the cultivated cherry to grow by budding on the wild cherry (*Cerasus serotina*,) or on the English Bird cherry, (*Cerasus padus*,) nor ever heard of any one who did; yet we see it stated in an English paper that the last one has been found a first class stock for *the Peach*. It would be very interesting if some one could find out why a cherry, which will not allow another cherry to grow on it, will yet give life and vigor to a Peach. So far it remains a mystery.]

Potatoes in Virginia.—*O. T., Lincoln, Va.*, writes: "Early Goodrich seem to do finely, and are

a first rate potato, but the Harison has proved a failure, as the tops have fired in every instance before the tubers were half grown on an average, some few hills remain green, but the larger portion are now entirely dead, whilst the Goodrich by the side of them are much the greenest, and the Buckeye quite green, though the Buckeye is an earlier potato than the Harison, in fact it is fit to use only a little later than the Goodrich. The Buckeye seems to do finely here, and is a first class potato. The main fault is deep eyes and hollow centre.

The Harison evidently will not suit this far south. Has there been any failure with it in other parts, I would like to know. I intend to plant some on the Blue ridge next year, to see if they will do there."

[We shall be glad of Potato notes from various quarters.]

New and Rare Fruits.

Hardy Raspberries.—By Baccamator.

I am a great lover of Raspberries, Mr. Editor, which for general utility and delicacy of flavor, I place first on the list of small fruits. Owing, however, to the severity of the winters in Canada, where I reside, I have as yet been unable to gratify my taste without the trouble of covering, &c., in winter, which being omitted, the hardiest raspberry I have as yet been able to obtain, has invariably been killed to the ground; accordingly, about four years since, I gave up their culture in despair, in a few words, Mr. Editor, I wished to get a raspberry that would endure the winter, and bear good crops with about the same amount of trouble one would bestow on a currant bush. I have at last been successful in accomplishing my object, and feel it my duty to amateur fruit growers, to inform them in what manner, hence the present communication.

On the 18th of July last, I visited the nursery of Mr. Charles Arnold, Paris, Ontario Co., when my attention was attracted to Raspberry bushes, or perhaps, more correctly trees, greatly exceeding in size anything of the kind I had ever seen before, literally loaded down with immense berries, of exquisite flavor, many of which, through being over-ripe were lying on the ground, while upon the same bush flowers were just forming; and I have no hesitation in saying, that it will yield an abundance of fruit, during a period of four weeks.

These Raspberries are hybrids, the female parent being the "White Cap," the male, the "Belle de Fontenay and the "White Marvel of four seasons," they are of different colors, red, orange and white, very distinct in habit and foliage, partaking more of the nature of trees than bushes, since on account of the size of the cane, they support their fruit large and abundant as it is, without any assistance whatever:

They are growing on the top of a knoll, without shelter of any kind from the wind in winter, or the direct rays of the sun in summer.

I saw them last spring, noted their exposed position, and expressed surprise to see them putting out foliage to the *very top* of their canes, since I could perceive that they had not been covered during the winter. It is my conviction, they may be grown with perfect success, on any common soil, with no more trouble than is usually bestowed upon a currant, or I may say a *bramble bush.*

I have compared them as regards flavor and productiveness, with the "Philadelphia," "Brincklé's Orange," "Belle de Fontenay," and "White Marvel of Four Seasons," and consider them in either respect much superior. I intend to grub up a number of currant and gooseberry bushes in their favor, that is to say when I can get them, for Mr. Arnold informs me, that he would have none to dispose of till next year. By inserting these few remarks, Mr. Editor, I believe you will confer a benefit upon such of your numerous readers, as are desirous of cultivating the Raspberry, but who like myself, have been deterred from so doing, in consequence of not being able to obtain one *perfectly hardy.*

[The above is from a responsible gentleman and amateur, and although some will think very much like an advertisement in favor of Mr. Arnold, we believe it is only dictated by the same spirit with which we publish it, namely a desire to give Mr. Arnold full credit for producing a valuable race of fruits. We have seen them ourselves, and heard others speak of them, and believe from all that they will be very valuable to all fruit growers.]

Foreign Intelligence.

Pelargoniums at the Royal Botanic Show, June 19, 1867.—Pelargoniums were exhibited in fine condition, but I shall only dwell upon the seedlings, of which there was a large bank, the greater portion being contributed by Mr. Foster, of Clewer Manor. Of these the best were Sœur de Charite, a bright orange flower, lower petals slightly pencilled, upper petals dark, with bright salmon rose margin; Empress, a salmon rose

flower, with a beautiful shade of violet through it, dark blotch, with narrow edge; Joan of Arc, a fine dark flower, reminding one, by its name, of the first grand march in Pelargoniums, ah! how many years ago, when the old Joan of Arc and Foster's Sylph astonished the world; but what an advance since then; Hermit, carmine lower petals, painted with dark cerise, upper petals black, shaded with dark crimson; Prince Consort, rosy carmine lower petals, medium blotch, the plant of excellent habit, and very free blooming; and Troubadour, a beautiful salmon-colored flower, very like Mary Hoyle, but a little more carmine in it, perhaps. Mr. Hoyle had only some yearling plants—Needle Gun, very dark; Patrimony, a large flower of bold appearance; and Miss Hervey, a pretty painted flower. Marksman (Fraser) is sure to make a good market plant, from its habit and profusion of bloom. From what I have seen and heard, the present is likely to be what I do not think last year was—productive of some fine flowers; certainly, in last year's group there is nothing so strikingly in advance as Charles Turner and John Hoyle were when they were shown. — *English Journal of Horticulture.*

About the Papaw Tree. — The following paper was read before the Linnean Society, February 7:—1. Notes on Papayaceæ, by Joaquim Correa de Mello and Richard Spruce; communicated by D. Hanbury, Esq. The authors describe three forms under which the common Papaw (Carica Papaya, L. Papaya vulgaris, De C.) occur at Campinas, in the province of Sao Paulo, Brazil. All these are alike in external appearance, and in the size and form of the leaves, but one is altogether female, another hermaphrodite, and the third male. The Papaw is thus trioicous or trimorphous. The Brazilians call the plant Mamoeiro, and the fruit Mamao (plural Momoes). The second genus of the order Vasconcella, the authors regard as untenable; but the third, Jaracatia, they believe will retain its rank, the aculeate stem, digitate leaves, with distinct stipellate leaflets, and the union of the filaments into a short tube free from the corolla being regarded as sufficient to substantiate it. "The ease with which the Papaw is cultivated, and the beauty and singularity of its aspect, have conduced, more, perhaps, than its large, luscious, but unsubstantial fruit, to render it a denizen of every warm country in the world. The fruit, although lightly esteemed by those who are new to it, is one of the most wholesome of tropical fruits. In South America it is eaten less as a dessert fruit than as a 'fresco' or grateful 'cooler' in the heat of the day, like Water Melons and Cherimoyas. It varies in flavor in different localities, being very insipid in some, but in others very sweet. At Guayaquil the perfectly ripe fruit is still so milky, that, after being sliced, and the seeds cleared out. it is usually put in water a short while, to allow the milk to drain away, which would, otherwise, scorch the lips like wild Pine-apples. Not that this acrid and slightly bitter milk is unwholesome; on the contrary, its well-known anthelmintic properties furnish the reason why eating the Papaw fruit is not known to produce ascarides, as indulgence in many other tropical fruits, such as Mangos, is apt to do." The fully grown, but not ripe fruit, is an excellent vegetable cooked in the same way as Vegetable Marrow, which it much resembles in flavor.

The Forests of Russia—Amongst the sources of wealth, unproductive as yet, are the forests of Russia, and which, for the most part, have the appearance of virgin forests. The forests of Prussia, which are not to be compared with those of Russia, are, thanks to a model management, the source of a considerable revenue to the State, whilst those of the latter are, at present, only an expense. Forest economy in Russia is in its infancy; its importance is reserved for the future; and the numerous railways now in the course of construction will contribute largely to its extension. The Western part of Northern Europe is poor in forests, whilst, on the contrary, the East is rich. Finland, the Governments of Olonetz, Wologda, Kastroma and Archangel all possess immense forests. On the 80,269,375 deciatines (1 deciatina equals 2 acres, 2 roods, 32 perches) that form the Government of Archangel, 30,312,209 deciatinas are covered with forests, of which 1,151,088 are the property of the Admiralty, as they furnish excellent timber for ship-building purposes. One district alone (Mesen) contains 14.865,872 deciatinas of forest land; and the districts of Pinega, Kemi, Cholmogory, Onega and Archangel are equally rich in timber. The Scotch Fir (Pinus sylvestris) is found in great abundance, and the forests of the Governments are principally composed of this tree; however, there is no scarcity of the Spruce Fir, the Siberian Cedar, the Birch and the Poplar. The first exportation of timber from Archangel appears to have been in 1761. During the last ten years the value of the timber exported from the ports of Archangel and Onega amounted to 346,978 roubles (£54,215), a small sum as compared with the riches of the forests of the country; and the Grand Duchy of Finland, though much smaller in extent, exports annually timber to the value of upwards of 2,000,000 roubles (£312,500). Better results may be predicted for the future, now that the Petchora, and especially its mouths, are navigable.—*Correspondance Russe.*

Horticultural Notices.

PENNA. FRUIT GROWERS' SOCIETY.

The Fall Meeting will be held at York, Pa., on Wednesday, the 2d day of October, 1867.

It is desired that members should attend and exhibit such fruits as they may have.

HIRAM ENGLE, *Secretary.*

[We are sorry that our friends do not advise us of their Meetings earlier. We seldom receive notices in time to render societies the service we are always ready to do.]

THE AMERICAN POMOLOGICAL SOCIETY.

The meeting was a very great success, both in the attendance, the quantity and quality of the fruits exhibited, and the general results. The first day's proceedings were chiefly the President's address, which we give in full, as one of the best histories of the society we know of, and which we wish to place on our record. Then an address by Thomas Meehan, on the diseases of the Pear, followed by a discussion. Mr. Meehan considered the Fire Blight and the cracking of the Butter Pear to be the result of different fungoid attacks, and nothing but cutting away and burning the affected parts before the spores matured, could successfully resist its spread. Nothing was brought out on the discussion opposed to this theory, while it received the sanction in a greater or less degree of Dr. Warder, Dr. Hull, Mr. Barry, Mr. Saunders and others.

Next followed an address by Mr. Saunders on the mildew on the Grape,—for this essay we shall find room for in a future number entire. Its reading was received with marked attention.

Hon. M. L. Dunlap made some highly interesting remarks on the marketing of fruit. One of the most instructive we ever listened to. The following is an abstract of an hour's address. He said:—

"We have now a new condition of things. Railroads have opened up through the country, and the more delicate luxuries of the fruit and vegetable garden can be sent hundreds of miles. The time when the surrounding farms could supply the villages and cities with those luxuries is past. The great plains to the west, the more rigorous climate of the North, must be supplied with those luxuries. Nor is this all. The season of the several fruits must be extended. Taking the State of Illinois as an example: her fruit region proper, runs through three hundred and fifty miles of latitude. Over this the season marches at the rate of about twelve miles a day.

The strawberry begins to ripen at the south end of the State May 5th. At that time the plants are not in bloom in Chicago, the great distributing point of the lake region, and are sent north to where the land yet lies locked in frost. While the season of the strawberry is only some two weeks, but when it follows the march of the season it is in the markets from May 5th to July 20th, two and a half months; other fruits have a similar history. To ship the strawberry eight hundred miles over railroads we extend the season more than two months.

The peach begins to ripen at the south part of the State July 1st, and by the march of the season continues until the October frosts close the orchards on the hither side of Lake Michigan.

Southern Illinois peaches are sent to market two-thirds to three-fourths grown, and after sweltering in the cars, reach the market in a soft condition. On the other hand, the Michigan peaches are picked nearly ripe and fully matured, and they are offered in the Chicago market in a ripe condition, and command a high price, and please the taste of the people, who from such evidence suppose that late peaches are much the most valuable.

Now, what we want is to send these fruits in a ripened condition to the consumer, and to do this we must ask the railroads to aid us. The Michigan peaches cannot be sent out from Chicago, for, being ripe, they deteriorate by every mile of railway transit.

We must have refrigerating cars, mounted on light steel springs, carrying not more than six tons, and running at nearly passenger speed, at reasonable charges for transportation.

For packages we must discard the boxes and use baskets. (Here the speaker described a new basket that was cheaply made, strong and durable. Boxes are of no value to the consumer for other use than firewood, while the basket has a value in every household, and they can be returned again to the orchards at little cost.

The necessity of packing fruits so that they may not be injured by friction of the moving train, and he suggested that peaches and grapes should be packed something like apples by the use of a small screw. This can be done by using a cover to the basket. How much the pressure should be can only be settled by experience in the several varieties."

Other points of value were discussed, but the above will show the animus of the remarks.

Then came the discussion on fruits. Everbearing Raspberries were discussed, and some members wanted a resolution passed discountenancing their entire culture—but on opposition, it was withdrawn. Lum's Autumn Black on exhibition was shown, and pleased the delegates generally. The Clarke was spoken well of for hardiness by all who had tried it. Nothing was said of its bearing properties. The Philadelphia was found by all, hardy and pro-

ductive, but not considered by most as of best flavor. The Seneca was spoken of as likely to be better than Doolittle,—and the Doolittle itself praised by all who spoke of it. Of Blackberries, the Kittatinny was exhibited in excellent order by Mr. Williams, who had brought it one thousand miles in proof of its carrying qualities all who spoke of it seemed to agree as to hardiness,—but all did not agree in their estimation of its merits.

Of Currants, the Versailles was particularly named as a valuable variety, and the whole discussion tended to show that the currant did not receive from the public a reward according to its merits.

Of Strawberries, but a few varieties were discussed. Agriculturist, some found worthless. Others praised it highly. Same of Jucunda. One thought it no better than a turnip,—others thought people foolish to give 60 cents per quart for turnips, and throw good strawberries into the Hudson river as not worth buying. Most who spoke had no experience with the fruit, but failed to get the plants to grow, and those which did grow grew feebly.

On Grapes, Mr. Fendler sent an essay on diseases, one of the most interesting and philosophical it was ever our pleasure to listen to, which referred some of the diseases of the vine to obstructed perspiration through the stomates of the leaves. Of varieties, the Iona was discussed,—most speakers failing to get it to growthrough mildew; no one spoke of having fruited it successfully,—the discussion turning principally on the mildew question. It was conceded to be a first class fruit, if it should ultimately be found to do well. The Israella was named, but not much discussed. Ives' *seedling* was discussed, and praised by all as a wine grape. Mr. Hussman, however, dissenting from the idea that it made as good wine as the Norton Virginia. In flavor some thought it as good as Concord,—others, only "nearly as good." The Cynthiana was named as a first class wine grape.

The Pear discussion did not bring out much new in the way of promising varieties. It was chiefly confined to noting those which had fallen away from grace. The Beurre Diel had taken to cracking badly for instance, and so on.

Owing to the lateness of our return from so far West, we can do no more than give this general dea of the proceedings,— we shall go more into detail in future.

We cannot close without a brief acknowledgement of the boundless generosity and kindness with which as representing the *Gardner's Monthly*, the Editor was everywhere received, and which will long be cherished a bright and pleasant spot in his career.

ADDRESS

BY HON. M. P. WILDER, PRESIDENT OF THE SOCIETY.

Gentlemen of the American Phomological Society:

—Once more, through His goodness whose promise of seed-time and harvest, cold and heat, summer and winter, day and night, has not failed, the revolving years have brought around the time for our meeting to renew the pleasant discussions of our favorite pursuit;—once more, through His mercy who healeth our diseases, I am enabled to stand before you, to offer you my congratulations, and to perform the duty devolved upon me by the office with which you have for so many years honored me.

The place where we were assembled—this great Western emporium, the half-way house of the continent; the time which has elapsed since the origin of the Society; and the interval since I last addressed you, protracted by my own ill-health, and the postponement of last year,—all concur in inducing me to lay before you a brief sketch of its history, of the work it has accomplished, together with some references to former suggestions and their practical results.

HISTORICAL SKETCH OF THE SOCIETY.

The first national assemblage, solely for the consideration of pomological subjects, was convened in Buffalo, on the first day of September, 1848, by the New York State Agricultural Society. "Its objects, apart from general discussion, were to identify synonyms, to correct errors in the names of our fruits, and to establish a uniform nomenclature." The session lasted three days, which were occupied with interesting discussions of many varieties of fruits; and the assembly resolved to perpetuate itself by an annual meeting under the name of the "North American Pomological Convention."

On the 10th of October, 1848, another convention assembled in the city of New York, under the auspices of the American Institute, pursuant to a call signed in behalf of the Horticultural Societies of Massachusetts, Pennsylvania, New Jersey, and New Haven, and the American Institute. Among the objects to be proposed at this convention were the following:—

"To compare fruits from various sources and localities, with a view of arriving at correct conclusions as to their merits, and to settle doubtful points respecting them.

"To assist in determining the synonyms by which the same fruit is known in different parts of the country.

"To compare opinions respecting the value of the numerous varieties already in cultivation, and to endeavor to abridge, by general consent, the long catalogue of indifferent or worthless sorts at the

present time propagated by nurserymen and fruit growers.

"To elicit and disseminate pomological information, and to maintain a cordial spirit of intercourse among horticulturists."

This convention adopted the title of "The American Congress of Fruit Growers," and was presided over by the present incumbent of the chair. Its first week was the appointment of a Special Fruit Committee, of which the late A. J. Downing was Chairman, to report a list of fruits worthy of general cultivation. After a session of three days, spent in the discussion of this list, which resulted in its adoption, with very few changes, and in discussion of other varieties, the Congress adjourned to meet in the city of New York, on the first Tuesday of October, 1849.

But it was plain that, for the decision of a Pomological Convention to carry due weight, there must be but one, indeed, that there could be but one national convention; and, accordingly, at the next meeting of the North American Pomological Convention, in Syracuse, N. Y., September 14, 1849, resolutions looking to a union of the two conventions, introduced by Dr. Herman Wendell, were unanimously adopted; and a committee, of which Dr. Wendell was at the head, was appointed to attend the meeting of the Congress for that purpose. The proposition for union met a hearty response from the Congress, which appointed a committee, headed by Mr. Downing, to confer with that from the North American Pomological Convention. At this conference the utmost harmony and good feeling prevailed; and it was agreed, with the largest spirit of fraternity and good will on all sides, that that the North American Pomological Convention should surrender its organization, and that the two associations should be consolidated as the "American Pomological Congress." At this meeting a few concise by-laws were established, the select list was enlarged, a list of new varieties which promise well was adopted, and a beginning was made of a rejected list, by discarding, as unworthy of cultivation, twenty-seven varieties of apples and ninety-nine varieties of pears.

The first meeting of the united conventions was at Cincinnati, in 1850; the president, however, owing to a death in his family, was unable to be present, and Dr W. D. Brinckle was chosen president. Since this meeting the sessions have been held biennially, the next being at Philadelphia, in 1852, when Dr. Brinckle having declined a re-election, the former presiding officer was again called to the chair. At this session, the death of Mr. Downing, which occurred a short time previously, was noticed by a eulogy delivered by the president, at the invitation of the Horticultural Societies of Pennsylvania and Massachusetts. A Constitution and By-Laws were also adopted, and the name was changed to the "American Pomological Society." The session of 1854 was at Boston; 1856 at Rochester; 1858 at New York, when a large number of names were added to the rejected list, making, with seventy-two pears discarded in 1854, and a few at other sessions, in all six hundred and twenty-five varieties of fruits. The session of 1860 was at Philadelphia; 1862 at Boston, when the present plan of the Society's Catalogue was adopted; and 1864 at Rochester.

In this brief outline of the history of the Society, I have indicated the more important measures which have been from time to time adopted for the promotion of its objects, in addition to the discussion of the various kinds of fruits at our meetings. These discussions have, at the last three sessions, been materially abridged, leaving the catalogue to be perfected by the labors of the Special Committee in arranging and condensing the information furnished by the Local Committees. This is undoubtedly our best policy; and although, to the true pomologist, the study of the characteristics of varieties possesses a fascination hardly less than that of the delineations of human character to the novel-reader, I would recommend, that, in future, still more time should be given to the subjects of culture, diseases, insects, the origin of varieties, the ripening and preservation of fruits, etc.; and to this end it is suggested that, in introducing new varieties, only those which give promise of peculiar excellence should be mentioned.

PRODUCTION OF NEW VARIETIES.

The great number of cultivators now raising new varieties of fruit from seed, especially of the grape, strawberry and pear, gives promise of the richest gains to our stock of fine fruits. When we consider the numerous acquisitions already obtained, the multitude of accidental seedlings, and the thousands of hybrids produced by artificial means, now in the process of growth, our most sanguine hopes are awakened, and we feel that we are on the right track.

In no one of my previous addresses have I omitted to urge the importance of this branch of our science; and as Von Mons advised his friends "to sow, to sow again, to re-sow, to sow perpetually," so now I repeat the words in which my views on this subject have heretofore been summed up; and as it was my

first, so it shall be my continual and last advice,—"Plant the most mature and perfect seeds of the most hardy, vigorous, and valuable varieties; and, as a shorter process, insuring more certain and happy results, cross or hybridize your best fruits."

The process of amelioration by sowing the seeds of successive generations, if founded in truth, is so long and tedious as scarcely to be worthy of trial. But we cannot define the exact truth of the theory; for we cannot estimate the disturbing influence of natural fertilization; and the impossibility of preventing this, where several varieties exist in the same ground, is apparent to all scientific cultivators. Under such circumstances, we could no more prevent an orchard of pears of different sorts from fertilization by the air and insects, that we could prevent a field of corn or a patch of melons, of different sorts, from mixing by the same process.

While most of our fruits have been produced by this process of accidental crossing, the number of finer sorts has been comparatively few and far between. We would not, however, discourage the planting of seeds of our best fruits, trusting to natural fertilization; but, to secure more rapid progress and better results, we must rely on the more certain and expeditious art of hybridization. By this means we may, in a few years, produce such novel and desirable combinations as ages might not give us by accidental fertilization, or sowing seeds at random. In employing this agency, we only imitate nature; for, though the artificial process is but of recent origin, natural hybridization must have existed from the creation, and undoubtedly gave the first hint to man of the power within his reach. Nor can we doubt that the knowledge of this process is confided to man, by the Almighty Creator, that it may be developed to its utmost extent, or that, in pursuing it, we are doing his will and working with him. Here, "the master-mould of Nature's heavenly hand" is placed within our own, so that the judicious and skilful operator may raise new and fine varieties of fruits with as much success as the farmer can produce improved animals by the crossing of his favorite herds.

We are as yet unable to fix the exact limits within which hybridization may be effected; but we know that they cannot be determined by botanical classification. The rhododendron and azalea may easily be hybridized; but no one has yet succeeded in hybridizing with each other either the apple and the pear, or the raspberry or blackberry, which are more closely allied. The American and the European grapes are classed as distinct species, as are the apple and pear, yet the former are much nearer relations than the latter, and in the Miller's Burgundy, with its woolly foliage and hardy nature, we have a connecting link between the *Vitis vinifera* and *V. labrusca*. These considerations may aid in removing the doubts which have been entertained on theoretical grounds as to the reality of the hybrids said to have been produced between the two species.

We have learned some of the laws which control the process of hybridization, but others yet remain to be discovered; and this partial ignorance, bringing to the pursuit an element of uncertainty, gives to it also a zest and fascination as great as that of the games of mingled chance and skill which are so universally enticing to our race, but with infinitely more valuable results.

In raising new varieties, an object of special importance is to extend the season of fine fruit, by producing varieties, ripening at its beginning and end, of equal excellence with those which now crown its height. How desirable to produce a pear as early as the Amire Joannet, or even the Doyenne d'Ete, with the size, and the cooling and refreshing juice of the Urbaniste!

It may be that nature has set limits to our achievements; it may be that time is requisite to produce size in fruits, so that we cannot expect our earliest varieties to be as large as our later ones; still, we may make some approach toward it; and he is a bold man who, in view of present attainment and promise, shall attempt to fix the bounds of our future acquisitions.

Before finally leaving this most interesting subject of the production of new varieties, I turn from these reflections which it has suggested, to repeat and reenforce my conviction, that the shortest and surest road to improvement in fruits is by hybridization and cross-breeding. In verification of this opinion, I would refer to the remarkable success of Mr. Rivers, in England, by crossing the peach with the nectarine; also to Mr. Rodgers' experiment with the grape in our own country. Of forty-five seedlings of the latter, many united the most valuable qualities of their parents in a high degree, and all to a greater or less extent, while not one was found possessing only the inferior qualities of the mother plant. How forcibly does this illustrate the beneficence of the Creator! how strongly does it encourage us to persevere in this good work!

In our experiments we shall probably witness many disappointments; but by carefully watching we may arrive at improvements of which we have so little previous conception, that, when gained, they will seem to us like new creations. In the words of the late Dr. Lindley, "We have but

stepped over the borders, and the whole field of hybridizing lies widely spread before us; its boundaries are lost in the horizon, and we shall find them still receding as we advance."

CHARACTERISTICS OF A GOOD TREE.

Ever since the formation of this Society, we have been discussing the best varieties of fruit, but we have never settled what constitutes a good variety. Let us give a moment to the consideration of the question, *What are the characteristics of a good tree and a good fruit, and what is their relative importance?*

I think we shall all agree that, to be desirable for general cultivation, a tree must possess, first, health, or freedom from constitutional disease; second, hardiness, or the power of resisting the extremes of heat, cold and drought; third, fertility, or productiveness of fruit; fourth, persistency of fruit, or power of adhering to the tree; fifth, vigor of growth, or productiveness of wood; sixth, persistency of foliage; and, seventh, a good habit of growth; and that those which unite these characteristics in the highest degree will be the most valuable. They are arranged in what is deemed the order of their relative value, though it is not easy to do this where they are mutually interwoven, and where all are necessary to some extent.

Health and hardiness are closely dependent upon each other. A diseased tree will be sooner injured or destroyed in an uncongenial climate than a healthy one; and, on the other hand, a tree cannot long remain healthy when injured by heat or cold; but health is placed first, because it is a universal characteristic: that is, a tree may be tender in one place, and perfectly hardy and of the greatest value in another, while a variety constitutionally diseased is valuable nowhere.

A good constitution for a tree is as essential as a good constitution for a man. Acclimation of a tender tree or plant is impossible. He who embraces this fallacy is like one building his house upon the sand, which will, sooner or later, be swept away by the vicissitudes of climate. The million cannot be educated to extraordinary care, therefore a primary object in the selection of a fruit-tree should be entire hardiness for the locality in which it is to be planted. Such a subject, although itself not producing the best fruit, will furnish the foundation upon which we may graft finer sorts, and thus render them durable,

> "Like the oak that has braved the blast,
> All the better for the trial."

Closely connected with hardiness is adaptation to soil. A variety which easily accommodates itself to any soil is of far greater value than one which is difficult in its choice, and therefore confined within narrow limits.

Productiveness is placed after health and hardiness, because these are necessary to a fruitful tree, and before vigor, because our object in planting being the fruit, productiveness of fruit takes precedence, in importance, of productiveness of wood. But, while a tree should be fruitful, it is desirable to avoid a habit of overbearing, which involves either the work of thinning the fruit, or else a large quantity of inferior fruit, and perhaps injury to the tree by exhaustion. The Beurre d'Anjou and Beurre Bosc Pears possess the valuable property of bearing the greatest part of the fruit singly and evenly distributed over the tree, and hence we find very few imperfect and no worthless specimens of these kinds. A variety which bears moderate annual crops is preferable to one which, like the Baldwin Apple, produces a heavy crop in alternate years.

Persistency of fruit has not received the attention which its importance deserves; but it needs no argument to prove that an abundant crop is greatly lessened in value by its liability to fall from the tree. This may arise from two causes: first, premature ripening, owing to disease, and so far connected with our first characteristic; or to heat, drought or insects, to resist which its power depends on its hardiness. Second, from violence, as in the Columbia Pear, which is more subject to have its stem broken and to be blown off than most other Pears. Trees with flexuose shoots will often retain their fruit when it is blown from those whose more rigid limbs offer a greater resistance to the wind; and a large fruit is not only more likely to be blown off than a small one, but to receive greater injury in falling.

Vigor of growth, or productiveness of wood, is, to some extent, antagonistic to productiveness of fruit, and, like that, it may be excessive. Especially in the vine is a moderate, compact, short-jointed growth, better than rampant over-luxuriance.

Persistency of foliage is closely dependent upon our first characteristic; for one of the surest indications of a strong and healthy constitution is abundant, deep-colored foliage, remaining upon the tree until frost.

The habit of growth may be upright, spreading or drooping, symmetrical or unsymmetrical,

straight or flexuose, stout or slender, pyramidal or round-headed, compact or open. The value of a good habit is well appreciated by the nurseryman who has endeavored to raise trees of an otherwise fine variety, of slender, straggling, almost pendulous growth, and, after great pains, succeeds in producing only a tolerable tree; while others naturally take such beautiful and symmetrical forms as at once give pleasure to the beholder. Not only is a crooked, straggling growth undesirable, but an erratic tendency to throw out a single strong shoot on one side of the tree, as in the Rostiezer or Andrews Pear, is to be avoided. It may be remarked, however, that a tree of drooping habit, such as the Marie Louise and Winter Nelis Pears, when grafted high, frequently exhibits a beauty of its own, like the weeping ornamental trees which adorn our lawns; but the true type of the Pear-tree is pyramidal, and of this the Urbaniste is a beautiful and perfect example.

CHARACTERISTICS OF A GOOD FRUIT.

To the question, *What are the points of a good fruit?* we answer: first, the best quality; second, durability, or the property of remaining sound after being gathered; third, size; fourth, color; fifth, form; though I regard the last two as of nearly equal importance.

So long as we raise fruit to eat, we can have no hesitation in giving the first place to its eating qualities. No combination of other properties, however valuable, can atone for any considerable deficiency in this respect. Texture, juice, flavor, aroma join to determine the quality.

Next in importance to quality is durability, or keeping; by which I do not mean late ripening, but the property, whether early or late, of remaining sound after being gathered. A habit of decaying at the core is a very great fault in a fruit; and, for market, one which can be ripened in the house is much more valuable than one which, to be eaten in perfection, must be ripened on the tree, as is the case with the Rostiezer and other Pears of the Rousselet family, the Early Harvest and Williams Apples.

The third requisite, size, is at once obvious. One of the highest flavored new Pears is Dana's Hovey, but its value would be many times multiplied could its size be doubled and its luscious character retained. Yet, while we seek for large fruit in preference to small, we should not forget that a fruit may be too large for table use. We have but one dessert Pear of the size of the Duchesse d'Angouleme, and, perhaps, one is enough. But whether the size is large or small, it should be uniform.

Beauty of color and form, though less important than the preceding points, are still of great value, and, all other things being equal, that fruit which possesses them will justly receive the preference. The best colored Pears are those with a brilliant red cheek, next to this comes a golden or cinnamon russet, then yellow, and last green.

Beauty of form has been less regarded than color, but a moment's observation will show its importance. Some pears are so beautiful in the curves which form their outlines as at once to attract and please the eye, while others are entirely unprepossessing, if not positively ugly. The Beurre Bosc is the most perfect example of the former; and it is not only beautiful in itself, but pleases us as being the true Pear type. After the pyriform comes the Doyenne type; and between the two we have all gradations, which are desirable in proportion as they approach the former. Next to the Doyenne is the Bergamot; then comes the globular; then the ovate, tapering towards the eye; and when this is conjoined with a knobby substance, it is worst of all.

These views are not put forth as by any means an exhaustive discussion of the subject, but rather as suggesting what might be done. My illustrations have been drawn chiefly from the Pear, because that fruit has been the study of my life; but what has been said will apply to the Apple, with little change; while, in the application of the same principle to the Strawberry or the Grape, we should reach a very different result. Perhaps you may deem it well, by committee or otherwise, to pursue the subject, and to establish a standard of excellence in all the different classes of fruit. Permit me also to repeat the recommendation that we should institute, for our guidance, "Rules of Pomology," similar to those some years ago adopted by many horticultural societies.

PRESERVATION AND RIPENING OF FRUIT.

I have recommended to your attention fruit-houses, built on scientific principles, for the preservation and ripening of fruit; but though these are of undoubted value, it is still more desirable to secure varieties that will keep and mature without such costly and elaborate structures as, though within the means of the wealthy amateur, are beyond the reach of the million.

One of the greatest hindrances to the keeping of winter fruits is the warm weather often experienced soon after they are gathered. An effectual method of overcoming this difficulty would be of the greatest value to cultivators; and it is hoped

that this desideratum will be supplied by the fruit-houses on Professor Nyce's system, which are now being established on a large scale in many of our cities; but as this subject will probably be brought to your notice during the session, I forbear to speak further of it at present.

The preservation of fruit by drying, canning, &c., appears to me worthy of our attention. Apples and Peaches are preserved by drying, to a large extent, in our country, and Grapes and Plums on a smaller scale; but I see no reason why they may not be prepared here in sufficient quantity to render us independent of foreign countries for our supply, especially on those parts of the Pacific coast where the European Grape flourishes, and the hot, dry summers are similar to those of the countries from which we receive our Raisins and Figs. Indeed, the making of Raisins has already commenced in California.

THE GRAPE.

In the whole circle of pomological progress there is no branch which excites so much interest, or gives such favorable promise, as the culture of the Grape. At last, the vine, which has been so much neglected or persecuted, from fear of producing an intoxicating beverage, is becoming the great object of attraction. From the Lakes to the Gulf, from the Atlantic to the Pacific, large tracts of land are being devoted to its growth. Companies and villages are springing up, wealth and enterprise are on the alert, in the belief that this department of fruit-culture is to be the most profitable. If the same enterprise continues in our land for the next half century, the words of the Psalmist will be realized: "Thou hast brought a vine out of Egypt; thou preparedst room before it, and didst cause it to take deep root, and it filled the land. The hills were covered with the shadow of it, and the boughs thereof were like the goodly Cedars. She sent out her boughs unto the sea, and her branches unto the river."

Throughout an extent of territory running over twenty-five degrees of latitude, and from ocean to ocean, the native vine grows spontaneously, is as hardy as the forests it inhabits, and ripens as surely as the Apple or any other fruit. All localities are not alike favorable for its growth; but it may be assumed as a general law, that, where nature has planted any of our wild species, there other new and improved sorts may be raised by hybridization, either natural or artificial, which will be equally as well adapted to that territory.

The Catawba, Isabella, Concord, Diana, Hartford Prolific, Creveling, and even the Delaware, if it be not, as some have supposed, a distinct species, are illustrations of the improvement of the species, or removal from the original type. Every year adds new and valuable varieties of such as are adapted to general cultivation or to particular localities. Missouri, Ohio, Illinois, Pennsylvania, New York and New Jersey have vineyards embracing thousands of acres. Other States have less quantities; while California, in whose favored climate the European Grape flourishes, has already commenced the exportation of wines and brandies to the Old World. Of the quantity of wine manufactured in the United States, or the crop of grapes, or the territory devoted to vineyards, I have not the statistics; but Mr. Hussmann, in his late work, estimates that, in the season of 1865, there were raised and sold in the single town of Hermann, Mo., two million Grape Vines; and these were not sufficient to meet the demand. The same writer says: "I think I may assert that, ten years ago, the vineyards throughout the whole country did not comprise more than three to four thousand acres. Now, I think I may safely call them over two millions of acres;" and it is estimated that, at the present rate of planting, in a few years we shall have as many Grape Vines in the United States as in all Europe. That this marvellous expansion of Grape culture has not been without results, is shown by the fact that ninety-five tons of Grapes have been shipped from a single city in Ohio in three days. In an estimate by Mr. F. R. Elliott, Secretary of the Northern Ohio and Lake Shore Grape Growers' Association, we are informed that there are seven thousand acres now set with Grapes, within the bounds of that Association. The same region, in 1865, produced two hundred and seventy-nine thousand gallons of wine, worth, at wholesale prices, between five and six hundred thousand dollars. Mr. Elliott says: "Had the entire Grape crop of that year been made into wine, the product would have been two million gallons."

In regard to the wines of our country, I may be permitted to remark that, from many comparisons made between the better samples of American wine, on exhibition at the Paris Exposition, with foreign wines of similar character, as well as from the experience of many European wine-tasters, we have formed a higher estimate of our ability to make good wines than we had before entertained. And from investigations in vine culture, we are now more confident than ever that America can and will be a great wine-producing country.

All that is necessary for us to rival the choicest products of other parts of the world will, with ex-

periments and practice, be attained. We have several excellent varieties of the Grape, and to which constant additions are being made. These are born on American soil, and suited to it—a soil and temperature extensive and varied enough for every range of quality and quantity. He, therefore, who shall discover a plat of ground capable of yielding a "Johannisberger," a "Tokay," or a "Chateau Margaut," will be a public benefactor; and somewhere between the lakes and the gulf, and the two oceans that circumscribe it, we shall find it.

History informs us that "the planting of vineyards in Italy had so much increased about A. D. 85 that agriculture was thereby neglected; on which account Domitian issued an edict prohibiting any new vineyards to be planted in Italy, and ordered one half of those in the provinces to be cut down." With our utmost zeal, it will be long before such an enactment can be needed in the United States.

The Isabella was introduced in 1818, and the Catawba at about the same time; and these were our only good Grapes until the Diana, which was first shown in 1843, but not appreciated until some years later. The Concord was first exhibited in 1853, the Rebecca in 1856; the Delaware was first brought to the notice of this Society in the same year; and the new kinds introduced since that time have been so many and so good that we can already hail the advent which we then foresaw, when grapes not inferior to the European varieties shall be raised in our gardens, furnishing fruit for the table a large portion of the year. Now that the fixed original habit of the Grape is broken, and the tendency to variation has come into play, and the possibility of hybridization between the European and native sorts is established beyond a doubt, we may expect the appearance every year of many new varieties, from which we shall be able to select those possessing every desirable quality. In view of the great and growing importance of this interest, we cannot employ our time more profitably than in such discussion of the culture and best varieties of the Grape as will elicit the information gained and the improvements made, the difficulties encountered, and the means adopted to overcome them.

GENERAL VIEW OF THE WORK OF THE SOCIETY.

In taking a general view of the work of this Society, we cannot but be struck with the richness, the embarrassing richness, I may say, of the material presented to us. In making up our Catalogue, we have been obliged, in every species, to omit, for some slight deficiency, varieties possessing so many good qualities as almost to grieve us to pass them by. It has been objected to Pomological Conventions, that the testimony to the qualities of the different sorts of fruit is so conflicting as greatly to impair their value; but we believe that, to one unaccustomed to weighing evidence, the marvel will be, not that there should be discordant testimony, but that, in our vast country, with its endless diversity of soil and climate, there should be so many kinds whose uniform excellence is either attested unanimously, or with barely exceptions enough to prove the rule. There may be some here who remember a motion, at the first meeting of the Congress of Fruit-growers, for a committee to report a list of one hundred varieties of Pears for general cultivation. The proposal was received with surprise at its audacity, if not with a stronger feeling at its folly; for had we not been told, by novices who thought they had got hold of an idea which more experienced cultivators had failed to discern, that there were not above twenty Pears of any merit? Yet the list of twelve Pears accepted at that meeting had, in 1856, only eight years after, grown to ninety-four, recommended for general cultivation either on Pear or Quince, or as promising well.

The progress we have made is nowhere more forcibly shown than by the fact that, while thus increasing our list, the standard of excellence has not been lowered, but raised. Twenty-five years ago every new fruit of good quality was at once recommended for more or less extensive cultivation; if a good bearer, it was so much the better; if a hardy and vigorous tree, better still; but quality was all that was deemed indispensable; while to-day a fruit must combine, in a good degree, all these, and many other points, or be at once passed by; and many of those then thought most desirable are now on the rejected list. We hear no more of varieties which, though not of sufficient excellence for extensive cultivation, were yet so good that "a single tree should be in every large collection." A sort worthy of no more extensive cultivation than that is not worth growing at all, unless it may be, as in a museum, for its historical value.

Our Society has brought together, from more than thirty States and Provinces, the most intelligent, experienced, sagacious and skilful cultivators, who have taught each other, and made the knowledge of one the property of all. Its example has led to the formation of similar associations in England, France and Belgium, and of local associations in our own country. It may fearlessly ask

to be judged by its published proceedings, which, in their reports of discussions, reports of committees, catalogues, and papers on various pomological subjects, embody, in a condensed form, such a mass of information on this science, the best thoughts of the best cultivators throughout our land, as is possessed by no other nation on earth. Instead of the fifty-four varieties recommended in 1848, our Catalogue now contains the names of five hundred and sixty-one fruits, viz.: one hundred and seventy-eight Apples, one hundred and twenty-two Pears, forty-three Cherries, fifty-five Peaches, six Nectarines, eleven Apricots, thirty-three Plums, three Quinces, eighteen native Grapes, twenty-two foreign Grapes, eighteen Currants, thirteen Gooseberries, twelve Raspberries, two Blackberries, and twenty-five Strawberries; and the list of one hundred and twenty-six varieties rejected in 1849 has grown to six hundred and twenty-five, viz.: one hundred and twenty-six Apples, three hundred and fifty one Pears, five Apricots, thirty-two Cherries, two Grapes, thirty-one Plums, three Raspberries, and seventy-five Strawberries; making a total of one thousand one hundred and eighty-six varieties of fruit on which the Society has set the stamp of its approval or rejection.

While the results achieved by other societies are of but local value, ours are a common possession to every inhabitant of our wide land. And if asked, What is the most important measure ever adopted? I should point to the Catalogue, first suggested by the Chairman of the General Fruit Committee, the late Mr. Walker, in 1858, consummated mainly by the intelligent, persevering labors of his successor, Mr. Barry, and adopted by the Society in 1862. Into it is condensed the substance and essence of our proceedings and the various State reports. At present it is necessarily in an incomplete but progressive state, and is intended especially for the use of the members of the Society; but with every revision it may be expected to approximate more nearly to perfection.

Among other objects specified in the circular by which the first meeting of the Congress of Fruit-growers was called together, is this: "To maintain a cordial spirit of intercourse among horticulturists;" and, although last mentioned, and to be effected rather by incidental and indirect than by direct means, it has not been forgotten, as the joyous greetings and kindly partings, the generous hospitalities given and received at our meetings, bear witness. Nor has the influence of these amenities ceased with the close of our sessions, but remained with us in pleasant anticipations of the time when we should again come together in mutual congratulation, as we do to-day.

MORAL AND SOCIAL INFLUENCE.

I have urged, among the advantages of our pursuit, that it ministers to the comfort and happiness of the human race, not merely by gratifying the sense of taste, but that it strengthens local attachments and multiplies the joys of home; promotes industrial happiness and the love of kindred and country; sweetens the social relations of life; and opens the heart to the study of nature in her most beautiful, bright and fascinating moods. And may I not now add to these benign influences what experience has taught me of the power of these studies to soothe and cheer in sickness and suffering, and express the hope that, in those hours of darkness and sadness from which none are exempt, you may, as you stroll among the trees which your own hands have planted, and which you almost fancy to be endowed with human attributes, and to be susceptible to sympathy and moral influences, find the truth of these words, spoken of another?

"The pulse of dew upon the grass kept his within its number,
And silent shadows from the trees refreshed him like a slumber."

DECEASED MEMBERS.

But while we rejoice in the progress of the Society, we are reminded of other changes since its formation, of those who started with us, but have ceased from among us. Of the nine members of the Special Fruit Committee which laid the foundation of our Catalogue, four—Downing, Lovett, Hancock and Eaton—were taken from us in less than seven years from our first meeting. And others there are whose graves, as they have fallen from time to time, we have strewed with sweet and bitter flowers, but not until we recall them together—Brinckle, Kennicott, Walker, French, Ernst, Reid, Saul, Frost, Beeler, and many others who took a less prominent part in the Society—do we realize the loss we have sustained. We count it among the choicest blessings of our lives to have enjoyed the friendship of so many wise and good men, whose talents would have given them eminence in any pursuit to which it had pleased providence to call them. We honored and admired them for their skill as horticulturists, but still more we loved them as men; we would cherish their memories now that they are departed; and here, amid the drought, and blight, and decay incident to all earthly things, we are cheered by the hope that we shall one day join them in that better country—

"Of fairer valleys and streams than these,
Where the river of God is full of water,
And full of sap are His healing trees."

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Hints for November.



FLOWER-GARDEN AND PLEASURE-GROUND.

Most of the tender plants that we desire to preserve over the season, have now been lifted from the borders, and removed to winter-quarters,—and in a few weeks the beds will present a rough and forsaken appearance. It is too often the practice to leave the borders just in this neglected condition till spring-time returns. But the person of true taste finishes up the beds, and makes all tidy. In the absence of summer flowers, even order pleases.

As soon as the first white frost has awakened *Dahlia leaves*, the stems should be cut back to a few inches of the ground, the label securely fastened, and the root placed away in a cool place secure from frost till next March, when it should be "sprouted," divided and again set out. Madeira vines, tigridias, gladiolus, tuberoses, &c., require the same attention.

As soon as the ground gets caked with the first real frost, herbaceous plants should be protected. Though hardy, they will repay this extra care,—mostly natives of woods or grassy places in their native State, they expect a covering of leaves or dry grass. We find dry leaves the best material for the purpose, a few inches in a sufficient depth,—a little soil being thrown on to prevent the leaves blowing away. Where such material is not at hand, the common garden soil may be drawn over them, as before recommended in these pages.

FORCING FRUITS AND VEGETABLES.

Few subjects are better worth the attention of nurserymen, market-gardeners and amateurs, than this very interesting branch of gardening; but it has been strangely and unaccountably neglected. Whether as a source of pleasure or profit, it is an equally delightful occupation; and the considerable space we intend to occupy with the subject will, we trust, be the means of awakening some enthusiasm in its behalf.

Grapes every one wishes to grow. For early forcing, they are the best grown in pots,—that is, where fire-heat is used; when a "cold grapery" is employed to produce them, they are usually grown in the open ground. This is a good season to prepare for the latter mode of culture, so as to have everything ready to plant out the vines next spring. Houses can now be constructed from one to three dollars per running foot, and capable of growing grapes to perfection, and, in many places, from fifty cents to one dollar a pound can be very readily obtained for the fruit. The borders for the vines need not be expensive. A dry bottom is essential, which must be obtained either by draining, or, what is better, elevating the border above the surrounding soil. A very durable and substantial border may be made by taking out the soil two and a half feet deep, and filling in with bones and broken stone, lumps of charcoal, brickbats, or any coarse material, to the depth of one foot, then filling in the remainder three inches deep with sods from an old pasture, to which about a third of well-decomposed cow or horse-manure has been added. The border may extend under the vinery, and some ten to fifteen feet beyond.

Pot vines are usually fruited the year following that in which they are raised. Plants struck last spring, and grown all summer, will now be ready, either to put away till wanted in spring, or started at once, where sufficient heat is at command. They should be at once pruned to the desired length, usually about six feet, the laterals taken off, the canes painted with a mixture of sulphur and soap,

to detsroy insects; and those not just now required, either put into a cellar or shed, secure from frost, to avoid danger to the pots. Those desired to fruit early should be at once placed in a temperature of 55° to 60°, and the canes bent down to aid in causing all the buds to burst equally. This however, depends on the condition of the cane itself. A vine with badly developed buds will not break well, no matter how well managed. The buds will only swell under the above temperature; but it is not well to start with much heat.

In a house of this character the fig may also be started at the same time, and the pine grow very well. The other fruits named will not do so well started with these, unless in the hands of greatly experienced gardeners, as the heat necessary to ripen the grapes so early is too much for them.—Dwarf beans, tomatoes and cucumbers would, however, do very well. These may be sown at once for this purpose. Peaches, nectarines and apricots do very well planted at the back wall of vineries and especially do they do well in tubs and pots. For the latter mode it is best to grow them one season before forcing, as better and handsomer specimens can be made from one year grafted plants. Now is the time to select those that we may desire to force the next spring. They should be lifted and potted very carefully, and afterwards placed in a cool cellar till February. Those that were potted last spring, and have a good growth, and are established sufficient to warrant an early forcing, may at once be started in a heat of from 45° to 50°, and the heat increased to 55° in the course of a few weeks. They should be previously cleaned, as already recommended for grapes.

Plums and cherries do not do very well forced. The difficulty is in getting them to ripen well. We have seen the best success when started with peaches at this time. Strawberries force easier than any fruit; and, in our opinion, when gone into properly, will pay even better than grapes. They may be had all the year round when a heat of 60° can be maintained, simply by bringing forward a few every two weeks. The pots of plants should be prepared in September, six-inch sizes being employed. They should be started in a heat of 55°, till the flowers are set, and ripened in one of 60°. They must be kept near the glass, and the red spider carefully watched. Those who have not command of heat may have them very early by potting good plants, keeping them in a moderately dry place till February, and then setting them in frames.

A house fitted for strawberry forcing is just the place to force asparagus, rhubarb, radishes, peas, and potatoes, which do not do well with much heat. Any of these may be started now either in pits or boxes. Peas are scarcely worth forcing, except as a luxury. They will not bear freely unless very near the light.

Potatoes, peas, beans, cauliflower, radishes, lettuces, tomatoes, asparagus, rhubarb and parsley are the chief vegetables usually forced; and. among fruits, the apricot, cherry, fig, grape, nectarine, peach, plum and pine.

A cauliflower pit should be in every garden where leaves or manure can be had. Radishes and lettuce can be found at the same time, and will be in use before the cauliflower grows in their way. Pits of stone or brick, about six feet under and one or two above the ground, are usually employed, with glass sashes over. The leaves should be filled in as early as possible, so as to get their most violent heating over before the plants are set out. A watering as they are filled in assists this, which may be known to be effected by the sinking it exhibits. It is important to have the plants set as near the glass as possible; a few more leaves should, therefore, be added before the six inches of soil required is placed on. The plants sown in September should be planted fifteen inches apart, and lettuce and radishes may be sown broad-cast between. Asparagus, rhubarb and parsley are prepared by taking up the old roots at this season.

FRUIT GARDEN.

So much has been said in this journal on the proper preparation of the soil for orchards, that it need not now be repeated. We should only say, that a light dryish soil is the best to choose for the Peach. The Pear does best on a strong loamy soil. Plums much the same as the last. The Apple prefers a heavy loam, if on limestone so much the better. The Cherry does well in soils adapted to the Peach.

Except in the more northern portions nf the continent, a southern aspect is the worst possible for all kinds of fruits, except where the one idea of earliness is all important.

Apples, Quinces and Plums, should be examined before frost sets in, and if any borers have effected a lodgment—a jack-knife and strong piece of wire are all the implements necessary; a man will go over several hundred trees a day. It is a cheap way of preserving trees. If many of the remedies proposed by correspondents in our paper, have been

tried and found effectual, such as tobacco stems, &c., there will be few borers to deal with in the examination.

Probably most of our fruits do best in partial shade. The gooseberry and currant certainly do. The fermer must have shade; and if on the moist northern aspect of a wall, so much the better. The Raspberry prefers a rather moist soil, and partial shade.

All Raspberries are hardy where their canes ripen well; where the shoots appear not to have matured well they will have to be protected in winter by bending them down and covering with soil. Some tie them up to stakes and cover with rye straw, corn stalks or cedar branches. In soils where small plants are liable to heave out in winter, strawberries will need covering,—where this does not take place, they need no protection.

In cultivating raspberries on a large scale they do best in hills, as the cultivator keeps them from crowding each other so much. For garden culture they are better in rows, the suckers to be kept hoed out occasionally as they grow; enough only being left that will be required for fruiting next year. Where canes are required for new plantations, of course a portion of the crop must be sacrificed to the suckers.

In choosing plants, select those that have been budded close to the ground, as when they are replanted the stocks should be buried an inch below the pear scion, which prevents the attacks of the quince borer. If a long stem has to be buried, the usual consequences of deep planting result, and do as much injury as the quince borer. Also in choosing, select, if possible, plants that have been raised from cuttings; for layered stocks have almost always a long deep tap looking root, on which dwarf pears do not do well. If we have to use such dwarf pear trees, better shorten some of this long trunk root before planting. Never plant what appears to be the stem of a tree far beneath the surface, under any circumstances, for disease will be most probably an ultimate consequence.

GREENHOUSE.

The greenhouse will now begin to look more natural, after having had the stock housed last month. With many plants having probably been taken up out of the open ground, many dead leaves will daily appear, requiring frequent removal, neatness is one of the chief beauties of a greenhouse. Acacias, and Australian plants generally, with hard wood and delicate roots, should be placed at the coolest end of the house, where little water will be required. These plants should not be watered often; but when they are, it should be thorough. Frequent waterings soon render the roots of these plants unhealthy, when it is very difficult to restore them to vigor. Whenever the foliage becomes of sickly yellow hue, the best plan is to plunge the plant in a larger pot, filling the space with moss,—and when the plant requires water, give it only through the moss, unless the plant seem to become so dry as to suffer, when it should receive one thorough watering. Very little fire should be applied to a greenhouse,—just sufficient to keep it at about 45°. Unless very far north, but little fire-heat will be required this month.

WINDOW PLANTS.

Window Plants should not be kept very warm at this season. They should have all the sun and air, and as little of the artificial heat of the room as possible. These remarks apply especially to Mignonette, which is very impatient of in-door confinement. Succulents, such as Cacti, are excellent window plants in this respect, as the dry air does not affect them. To keep the air about the plants moist, is one of the secrets of window-culture. Some who have very fine windows well stocked with fine plants, make glazed cases with folding doors of them, by which, when the room is highly heated and very dry, they can be enclosed in an atmosphere of their own. In such cases, ferns and mosses can be grown to perfection, and pendant plants in hanging vases give a Brazilian forest appearance to our happy Christmas homes.

AQUARIUMS.

Aquariums are now so well understood, as to be in a fair way to become essentials in the room-gardening of all persons of taste. Growing plants, fishes and water reptiles are placed in the same globe or tank of water, and the gases which the fish reject are the food of the plants; while the plants, on the other hand, prepare the elements necessary for the health of the fish. By this beautiful principle of reciprocity, both plants and animals remain in perfect health, without the water scarcely ever being changed. A tank for plants and animals might form the base of a pretty parlor ornament, a central portion consisting of a case for ferns and similar plants, and a cage for birds on the top.

Communications.

THE PEAR AND ITS CULTURE.

BY P. T. QUINN, NEWARK, N. J.

Read before Pa. Hort. Soc., Sep. 3, 1867.

In preparing an essay on the pear and its culture, to be read before this intelligent body whose members are more capable of imparting information on horticulture and its kindred branches, than being instructed or becoming listeners to one who has always looked up with respect to the knowledge emanating from this old and useful Society. I feel the delicate position in which I am placed, in discoursing on a topic so familiar and well understood by the active members of the Pennsylvania Horticultural Society.

My remarks will be brief and directed principally to the culture of the pear for market purposes. In going over the ground, in case there are any conclusions drawn that may differ from the "laid down rules," I will state them, because my experience of over a dozen years in growing pears for market, has led me to accept them as facts, and by stating them (in case I am correct) it may be the means of preventing some one from repeating the same mistakes that myself and many others have tasted the bitter fruit of. It is singular indeed, but nevertheless true, that there are but few persons who have planted pear trees in a large way, who have not fallen into the same class of mistakes, and by so doing have their pockets and patience sorely tried.

The science of growing trees that will produce choice fruit is very simple when once understood, but it is during the time spent in wading in the dark without any lighthouse to guide our steps that the inexperienced suffer from a series of disappointments. It is folly to suppose that every person who plants an orchard of pear trees succeed. On the contrary, as far as my personal observation has extended, there has been more money lost than made, for I could enumerate five persons who have utterly failed to every one who has made pear culture profitable.

Think but an instant, of the number of pear trees that have been sold annually for the past fifteen or twenty years, and then search for the healthy vigorous orchards that should by this time be producing abundantly! Such orchards are but few in comparison to those of sickly, mis-shapen and unproductive trees to be found everywhere.

There are many obvious reasons for the numerous failures that present themselves to our view on every side, and much valuable information has been arrived at by observation, but this has generally been found a very expensive means of gaining information. Under the excitement of "pear fever," many persons planted large fields without any preparation of the soil. Others selected long lists of varieties that were unsuited to their soil and climate. Others, again, believed that a fruit tree once in place, could take care of itself without further expense or trouble to its owner.

It is only necessary to say in this connection, that with such treatment and want of definite knowledge pear culture will seldom prove profitable.

At this point, the question would naturally suggest itself. Can pear culture be made a safe investment for capital? I would assuredly answer *yes*, provided a judicious selection of varieties are made, and the soil properly prepared before planting; this with a certain amount of care in providing for the wants of the trees, during the early stages of growth, will make the investment both safe and remunerative. The inducements now offered for growing pears for market, are greater than they were ten years ago, from the fact that the demand is still greater than the supply, and the prices average higher now than then.

The first important movement to be made, preparatory to planting, is a thorough preparation of the soil, whether for garden or field culture. In case the land is a heavy clay retentive of moisture, underdraining will have to be resorted to in order to aerate the soil and carry away the stagnant water. This should be done at least a year before the trees are planted. In the meantime the surface and subsoil should be thoroughly distributed by repeated plowing. My practice is to underdrain during the summer, then fall plow and subsoil, leaving the land in ridges during the winter. In the spring, when the ground is dry enough to work, surface plow, running the lifting subsoil plow in the bottom of the furrow. This latter operation, with the effects on the soil of the alternate freezing and thawing in the winter months, leaves the soil in fine mechanical condition. The land is then made ready for a root crop, usually potatoes which are planted in the ordinary way, the rows wide enough apart to admit of horse implements. Before the crop is planted, our custom is to apply to the surface broad cast five or six hundred pounds of super-phosphate to the acre, and harrow it in; and woodashes in the drill at the time of planting. The surface should be kept loose and free from weeds, by frequent disturbance of the surface soil with the horse hoe.

When the crop is harvested, the land will be in excellent condition for planting, which may be done in the fall or the following spring, as circumstances may dictate. I select the fall in most cases, for the reason that we have more leisure, and the soil is usually in better condition. There is one draw back however to fall planting: except the trees are closely pruned at the time of planting, the heavy winds by swaying the tops, may seriously injure the roots. For persons not hurried by other work, having the conditions equal, I would advise spring planting; but under no consideration to set out a pear tree while the ground is wet or soggy.

Land that will produce twenty-five bushels of wheat, fifty to sixty bushels of shelled corn, and from one hundred and seventy-five to two hundred bushels of potatoes to the acre, will, when prepared in the way described, yield satisfactory crops of fruit, and with a little care and attention in pruning, and not allowing young trees to over-bear, the orchardist will be well rewarded for his labors. When the intended rows are mapped out, it is our custom to run a large size lifting subsoil plow a dozen or more times in each row, until the soil for four or five feet on either side of the line is thoroughly pulverized. When this method is adopted, it makes but little difference how large or small the holes are made for the reception of the trees.

Selecting varieties is always a difficult task, even to those who have had previous experience; and I know in our own case, if in making our selection, we confined our list to five good varieties, instead of fifty, we would be several thousand dollars better off to day.

In another instance that has come under my observation, in an orchard of fifteen hundred trees, the proprietor informed me it made a difference in his receipts of $3,000, in ten years.

It is much less trouble and more profitable, to dispose of one hundred barrels of any one well known variety, than it is to sell ten barrels of ten different varieties. In an orchard of five hundred trees I would not have less than one hundred of any one kind. As a matter of course before deciding, I would endeavor to make myself familiar about the kinds that were most likely to do well in the locality. In making selections for the orchard, we should always give preference to trees, whose natural habits are vigorous, thus combined with productiveness and good quality, and adaptation to soil and climate, are the requirements we need. There are many choice kinds of pears, on our catalogues, still their habits of growth are so irregular and uncertain as to render them unfit for the orchard.

I cannot recommend or make out a list of varieties, that would be a guide to others located in a different part of the country, for there are so many contingencies that such a list would be more likely to mislead than instruct. Our experience however, has caused us to reduce our list of varieties for market purposes to the following named kinds: Bartlett, Doyenne Boussock, Duchess d'Angouleme, Sheldon, Beurre Clairgeau, Beurre d'Anjou, and Lawrence.

So far, we have no winter variety that has given us satisfaction—the Vicar of Winkfield is quite productive, but not always edible. The Glout Morceau is not worthy of a place in the orchard in our vicinity. It is the most promising and least productive of any variety that I am familiar with.

Pears ripening before the Bartlett with us, have not been profitable, and therefore the majority of our early sorts were worked over with later kinds.

Dwarfs and Standards.—After fourteen years of practical experience, with pears and their culture, and having under my charge part of that time more than one hundred varieties, including all the leading kinds, planted on well prepared soil, I have come to the conclusion contrary to my former views, that with a single exception the culture of the dwarf in the orchard or garden is a failure. This conclusion is not the result of a few days investigation, but has extended over many years; and as fact after fact presented themselves, I was slow to accept them as conclusive until it became so apparent that to hold out any longer would be obstinacy. For a long time I had reason to suppose that the Angers Quince was well suited as a stock for many of our best varieties of pears, but so far as my experience and personal observation has gone, the number has dwindled down to one variety, that is the Duchesse d'Angouleme. How long this kind will continue to do well, on quince-root I am not prepared to say, but if it should fail, I would feel much discouraged, for I have met with but little success in growing this variety as a standard. Every other kind that we have under culture, do better as standards. I find little difficulty in bringing them into bearing the fourth and fifth year from the time of planting by a simple and judicious system of pruning. Nor are the fruit inferior in quality on our soil—although specimens of the same variety are frequently larger on the dwarf than the standard.

For many years during our early experience in pear culture, we planted trees in the orchard not less than two years old, believing, as we then did, that younger trees would not do as well. On this point we have changed our practice, and now select

well grown, one year old stock, in preference to all others, for the following reasons:—Trees of this age cost about one half as much; when planted in the orchard they will become more uniform in shape and size, with less labor; the purchaser will get more roots in comparison to the tops, and the freight will not average more than one-quarter for one hundred one year olds, and will not occupy less space than twenty-five or thirty two years old trees.

The distance apart that trees should be planted in the orchard depends somewhat on the mode of pruning to be adopted, and the use to be made of the ground between the rows. In case the trees are trained tall, with spreading tops, the distance, both between the rows and the trees in the row, must be more than if the conical shape is chosen. When the latter mode is adopted, dwarfs may be set 10 by 10, and standards 12 by 16. At these distances we find by experience, on our place, there is enough room for all practical purposes. No matter how far the trees are set apart, it is necessary to take out some wood from many of the more vigorous trees, so the sun and air can readily penetrate to the centre of the tree.

PLANTING.—Every thing should be in readiness before the trees are taken to the field, and the roots should not be left exposed to the sun or dry air. All broken or bruised roots should be cut off before the tree is planted. Dwarfs should be set so that from four to six inches of the Pear stock will be below the surface. Standards may be set a few inches deeper than where they stood in the nursery row. Each root should be drawn out to its full length, and fine surface earth shaken around it. When the hole is filled, press the earth firmly around the body of the tree, so the roots will not be displaced by the swaying of the top. At the time of planting I always use some finely ground bone or super-phosphate of lime to mix with the earth that comes in the immediate vicinity of the roots. Trees that have been out of the ground for a long time, and suffered from exposure or careless packing. I have frequently saved, by immersing the roots, for two or three hours before planting, in water, having added finely powdered bone or superphosphate of lime. In this connection I will state that, under no consideration, would I be tempted to apply to our orchard any unfermented fertilizer.

PRUNING.—It is no longer a disputed point among intelligent fruit growers, that a judicious system of pruning is all-important. When the form of the tree is decided upon, then the main object should be to encourage an upward and outward growth. Under a proper system of pruning, the tree should bear its fruit on the main branches, near the centre. Except the wood is thinned out in such a way as to admit air and light freely, the fruit in the interior of the tree will be inferior, both in size and quality.

When pear trees are left uncut, the shoots of many varieties grow closely together, the buds nearest the base of each branch become dormant, and the fruit spurs are formed on the ends of these long branches, the position least suited to sustain the weight of fruit. Of late years we have adopted the conical shape, both for standards and dwarfs, for the following reasons, which we have found to stand the test of practice:—

1st. The largest surface is nearest the ground, and, therefore, less likely to suffer from heavy winds.

2d. The fruit is not injured when falling from the tree.

3d. Less surface is shaded with the pyramidal than with higher and more spreading forms of growth.

4th. The trunk is not exposed to the direct rays of the sun, and, consequently, the flow of sap is not accelerated, as would otherwise be the result.

5th. The fruit spurs are formed on the main branches, near the body of the tree, and, of course, a greater weight of fruit will be sustained with the least injury to the tree.

Under our present method, the young tree, when set in place, consists of a single upright shoot. This is cut back, soon after planting, to a point where the side branches are wanted. Having plenty of room, these side branches will be more regularly distributed; and with some judgment and attention in cutting back and thinning out, a tree will be formed that will bear heavy burdens of fruit without injury. There are many varieties of pears whose habits of growth are regular, the branches having a tendency to an upward and an outward growth, requiring but little attention from the owner to make well formed trees. The Bartlett, Duchesse d'Angouleme and Sheldon are specimens belonging to this class. There are other kinds whose habits of growth are spreading and irregular. These require closer attention during the first, second and third year after planting, to keep them uniform in size and shape. For the latter class the pruning or cutting will depend on the position of the branch or bud. If it is necessary to have a shoot go straight up, then select a bud on the inside of the shoot; while if, on the contrary, an opposite or side deviation is wanted, select a bud pointing in either direction.

Pruning can be done at all seasons and for the most diverse objects. I am always prepared to remove a branch, although the bulk of our trees are cut in March and April.

To prune for a conical tree, each branch should be longer than the one immediately above it; and if the operator will adhere to this rule—keep the tree open and encourage an upward growth, all will be right.

We practice summer pruning (which is simply removing or pinching back the young shoots in July) on some varieties to bring them into bearing. But most kinds, when carefully pruned, will begin to produce fruit the fourth and fifth year from the time of planting. I am well satisfied that proprietors are much to blame for allowing young trees to overbear. A great many cases have come under my observation where I could trace the cause of premature death to allowing young trees to produce fruit.

For two or three years after planting, root crops can be grown between the rows without material injury, if the land is kept in "good heart," and the weeds not permitted to grow. Deep plowing in the orchard should not be attempted after the third year; shallow surface disturbance is all that is required.

Gathering Fruit.—The proper time to remove fruit from the tree is soon learned by experience; the eye detects at once the specimens that will ripen without shrinking when taken to the fruit room, or packed carefully in barrels and placed in a cool, dry cellar, where the light can be excluded. The whole crop should not be gathered at one picking, except all are equally advanced. Our plan is to go over the orchard three our four different times, and only remove those at each picking that show signs of maturity, and by lifting such specimens gently by hand, they separate easily at the end of the stem. There is, frequently, a difference of ten or twelve days in the date of ripening in fruit grown on the same tree. Choice fruit, whether for home consumption or market, should be hand-picked, laid carefully in baskets or barrels, assorted and removed at once to the fruit room or cellar. Most pears, when ripened off the tree, are superior in quality to those left on the tree until they are ready for use.

Marketing Fruit.—Notwithstanding all that has been written on the subject of sending fruit to market, yet from one-half to two-thirds of the pears shipped to New York arrive in a damaged condition, owing, in most cases, to careless sorting and bad packing. It is not unusual to find large fruit on top and small and inferior specimens towards the centre of the package. This trick is detected at once by the dealer, and the fruit is disposed of as second, third or fourth quality. Every pear in a barrel or basket should be nearly of a size, to ensure a ready sale and the highest price. If this rule is faithfully adhered to, the brand will be sought for by a class of customers who patronize honest packing, and will pay even more than the market price, when they are certain of getting a good article. The following directions for packing pears I wrote for the *Working Farmer*, some months ago:—

"When the fruit attains the proper stage of ripeness for shipping, pick the Pears by hand, and put them in baskets; or, take a barrel, turn it upside down, and remove the bottom by driving off the hoops. Then place some cheap white paper inside, over the lid, etc. Fruit looks better when the barrel is thus lined. The Pears are then laid on their sides, closely together, until the top of the barrel is covered. A second layer is added in the same way as the first. Continue in this way until the barrel is one-third full, then shake gently, so that the fruit will settle without being bruised. This shaking should be repeated at different times, until the barrel is full, when the pears should be placed in such a position that the bottom of the barrel, when pressed in, will come in direct contact with the last layer. The hoops should be put on and four small nails driven through them, to keep them and the bottom in place. The barrel may then be marked 1, 2 or 3, so that the consignee may know the quality of the fruit without opening each package, although he should always be advised by mail of the number of packages and the quality of fruit shipped.

"In some instances, choice pears command higher prices when packed in new half barrels; and when these are used pack in the way described for barrels.

"When pears are packed in this way, if the lid is taken off, each pear lies close in position, and the appearance presented is inviting to the purchaser, and they will always command the highest market prices. It requires only a little practice to become quite expert in packing fruit in the way described. When baskets are used, they should be lined with white paper, and the pears laid in carefully by hand; shake the basket gently occasionally, so that the fruit will settle, and fill the basket a little above the level of the rim; then the covers are put on and the fruit forwarded with as much care as possible to its destination."

PROFIT OF PEAR CULTURE.—In our orchard we have a large number of trees planted at different times over a period of seventeen years. Our early planting consisted of a great many varieties, the largest portion of which were removed or worked over with other varieties. Year after year this was repeated, until we reduced our number from fifty to eight sorts for market purposes. The largest number of trees of any one variety in our orchard is the Duchesse d'Angouleme, which variety, with us, with a few exceptions, has produced annual crops of fruit.

To give an account of the sales of fruit from our entire orchard would be unsatisfactory, on account of the difference in age of the trees, varying, as they do, from two to seventeen years.

Nine years ago I selected a single row of thirty Duchesse d'Angouleme trees, planted ten feet apart in the row. Since then I have kept an accurate account of the total sales of pears from these thirty trees. They are now seventeen years old, and have produced seven crops in eight years. The trees are at present looking very well, and, if we can judge from appearances, they will continue to be productive for many years. They were, originally, dwarfs, but I am quite confident they are changed to standards, and this is true of the majority of our Duchesse d'Angouleme trees. The following is the amount of each year's sales:—

The 1st crop, the trees eight years old,		$120 00
" 2d "	- - - -	139 41
" 3d "	- - - -	156 17
" 4th "	- - - -	201 28
" 5th "	- - - -	267 49
" 6th "	- - . -	310 20
" 7th "	- - - -	705 00
Total,		$1900 55

The row last year produced ninety-four bushels of marketable fruit, which sold for $705. There was a scarcity of peaches last year, and pears, in consequence, brought higher prices than usual. I will, in this connection, state that this row is the best in our orchard, and no other of an equal number of trees has yielded as abundantly; nor do I give these figures as a guide or criterion in pear culture, but simply place them before this Society to show what can be realized from this variety. From practical experience, I am thoroughly convinced that Pear culture can be made to pay a large profit, and is a safe investment, where the requirements are complied with. We have made pear culture profitable, although we have met with, during our apprenticeship, many serious reverses; but instead of being discouraged by these drawbacks, they incited extra efforts on our part.

NOTES AT MAJOR-GENERAL NEGLEY'S, NEAR PITTSBURG PA.

BY MR. W. HARVEY, PITTSBURG, PA.

I have heard a great deal about this place. It is a about four miles from Pittsburg, by railroad; at the Shady Side Station, owned and occupied by the well-known Gen. J. S. Negley, the lover of novelties. I was invited by the General to see the place, and must say that I was amply repaid for my visit. Coming from the railroad, the first scene is a splendid piece of roses; then comes a very fine lot of seedling verbenas, groups of cannas and colocasia; with the well kept grass, the walks covered with tan, and everything combined with neatness make it a complete paradise. Farther on come six splendid lots of seedling gladiolus, some of the most magnificent striped that ever were seen by man; then come Asters in almost every shade and color. Some of the finest Double Zinnias that can be found, Double Dianthus, from the most pure white variegated to the deepest crimson. I may add not in small patches, but covering an area of between three or four acres of ground. Now for coxcomb, which is well known to every one, but here they are unsurpassable—they are monsters, some measuring eighteen inches across and the old original type; there is a large patch, of all the sights that ever I saw, those attracted my attention the most: there were beautiful types combinen with the richest of colors from a beautiful yellow to the most intense scarlet risings in the centre with a dozen stems, some conical, some pyramidal.

The beautiful plumage of the centre, combined with the branches round, makes it one of the greatest novelties that can be found, the Ostrich with all her beautiful plumage cannot be compared with these.

I have had experience lifting roses open ground in summer, the 9th of August, very hot and bright weather, I did not do it from choice but, as the piece of ground was to be cleared where they were growing; and as I did not like to loose the plants, I concluded I would try what I could do. There were only one hundred and twenty-two in all, I commenced by digging out a trench, working under the plants as much as I could, then taking out the plants, at the same having some boxes standing by as I took them out. I put the plants in the box and covered the roots with moist soil and a wet cloth covered over the plants to keep them moist. I had seven miles to take them, therefore was not potted till the next day,—from taking up till potted, was about eighteen hours. I may here state that I gave them a severe pruning, and then after potting, put

them in a cold frame, kept them moist, shaded, and the closed frame, and now the 21st of September, they are literally covered with roses and buds, only two dying out of the lot, throwing up around the centre are fifteen, some twenty, branches about two feet high, with a fine vigor, the sides of the branches are literally covered with beautiful trusses of flowers from the ground up to the point of the stem. In conclusion I may say, that any one visiting Pittsburg will be well repaid by calling only just to see these novelties, and they may rest assured that they will meet with a welcome reception.

GERANIUMS.

BY J. M., PHILADELPHIA.

The season is again at hand when those who have experimented with Geranium growing, can form a good idea of the relative value of the kinds that are obtainable for bedding. I have found this flower to be about my main reliance in the past summer, for a continuous effective show of bloom in the flower garden, and can truly say, I know of no other flower approaching it in general usefulness, both as a bedder and Pot plant. It is not with us now as in former years, when about a dozen varieties was the limit of their number, but we can select from perhaps fifty different forms of leaf and variety of colors, more than I think could be found amongst any other class of bedding plants. Of various bedding plants, growing in my beds the past season, the Geranium alone presented a creditable appearance, at all times commanding admiration for their variety and beauty; even during the unprecedented wet, early summer months, when other things were mostly without bloom, they still looked well. The Verbena formerly ranked first as the most useful bedder we had, but of late years, the attacks of rust and Red spider have become so destructive as to much impair its usefulness, so that it is with pleasure we turn to the Geranium, as a better substitute, being free from the attacks of any insects or blight, and luxuriating in our dry warm climate in summer.

In the November No. of the *Monthly* for 1866, I made some remarks on this class of flowers, and on looking over it again after another year has passed away, I find little to alter or retract. I then spoke unfavorably of "Lord Palmerston" as a bedder, and cannot now recommend it, except for Pot culture in the shade. It is a good flower, but cannot compare with "Stella" or "Cybister" as bedders. The two last are very alike in color, both being a vivid scarlet. the latter has longer and narrower petals than "Stella." I mentioned in my former notice as a bedder "Beaute de Suresnes," I now think it unworthy of a place as such, flowering too sparingly to be of any value, Of some newer ones, flowering last season, were "Indian Yellow," the flowers of which will require a powerful microscope to discover in them the yellow, "Magenta Queen," a good kind of the color indicated by its name; "Orange Nosegay," a good orange, but not so good as "Orange Queen," a most profuse flowering sort with deep brick red flowers and shiny green leaves. "Earl of Hardwick," a cherry colored nosegay, not a large truss, but a profuse bloomer, and distinct. "Mrs. Caleb Cope," a deep peach-colored nosegay, profuse of bloom and distinct; "Florence," a Salmon, remarkably fine formed petals, and "Mountain of Snow," the last a vigorous growing white flowered kind. I should also have mentioned "Duchess" a fine rosy lake, which with "Earl of Hardwick and Mrs. Caleb Cope," I think are the best three of the whole.

AT KNOX'S AND ALONG THE SOUTH SHORE.

BY W. H. L., SANDUSKY, OHIO.

It is written Pan is dead, and Bacchus with his frenzied troop no longer haunts the burdened vineyard or finds generous cheer at the wine vats. Well, though sung of old, wander a half day in the August days along the verduous slopes and breezy hill-tops of Knox's Fruit Farm, and you will stoutly deny it. This is Arcadia restored, and the reign of the Merry Monarchs. Here are orchards wide-spreading, apple and peach; acres of vineyards in vast blocks to right and left, walled up in parallel masses of greenery; squares also, including acres of strawberry vines full of vigor, when not only thirty and an hundred, but even "700" fold is yielded to the skilful husbandman; and, an opposing slope, looking away from the noonday sun, are fields of Raspberries and Blackberries; and, in nursery rows stretching far and near, numberless as leaves in Vallambrosa, fine young vines, vineyards, yet to be, "for the million."

Will the reader forgive so much of the merely fanciful in notes otherwise studiously didactic? Such a vision, bursting in almost at a glance, exalts the mind, and mammon finds his devotee sadly unfaithful in telling over his beads of gains and losses.

One thing we may remark here. The bird's-eye view along these hill-sides has a tale to tell in its own decisive way. Wherever there are Concords, the trellises are banked up with bright foliage—no breaks to pain the eye. Half-naked rows, or sickly

leaves, indicate Iona, or Adirondac, Delaware may be, or Allen's Hybrid.

Before the vineyards were planted, no expense was spared to bring the stubborn soil, a stiffish clay loam, in some places largely intermixed with sandstone, to a fine tilth by twice subsoiling in the Fall and once again in the Spring. At first the vines were set twelve feet distant in rows eight feet apart, but all the later vineyards have been set eight feet by six in the row. It was long before arms could be trained to six feet, and fill the trellis, but the six feet distances were soon occupied with bearing canes. The posts are ingeniously devised. To foot-pieces of enduring timber as locust or cedar, long enough to insert in the ground and project somewhat above it, are nailed uprights of a cheaper sort as oak.

These are planted about twelve feet apart, and to cross bars attached to the posts at a foot and seven feet from the ground are nailed vertically narrow strips of board nine inches asunder. The method of training is to renew the canes annually upon two horizontal arms of 3 feet each. Willow is used at the first tying, and rye straw afterwards. Summer pruning of medium severity is practised.

The plow does some slight service spring and fall, but during summer weeds are kept down by cultivating to a shallow depth—along the rows by the hoe.

The Concord, of which there are fifteen acres or more in vine and foliage, evidence remarkable vigor and health. Mr. Knox must look well to his market, for he will have a vast harvest of noble clusters. In places there were some slight traces of rot, mostly confined to vines which overbore last season, but the loss will be scarcely appreciable. The Delaware, ranged along side of the stalwart Concords, suffer something by comparison, but are demeaning themselves this year quite handsomely. Though mildew and thrip have wrought mischief among the leaves, there is abundance of foliage to mature the fine growth of wood and the fair yield of fruit. Now, the 26th of August, scattered berries only are well flushed. The Hartford as ever, is in robust health and gratifies the proprietor with a great weight of fruit. It is colored but little yet. This variety induces further planting to the extent of several acres, because every year it is largely profitable—a heavy crop coming in early, no rot, no mildew, and abundant, well ripened wood.

The August Pioneer, a great vine, a scanty bearer of large, black foxy berries, now being marketed in Pittsburg at fifty cents per pound.

The Adirondac, though in position for four or five years looks lamentably shabby and shows no fruit, or so little as to escape notice. A block of this variety nearly stripped of leaves by mildew, stands in striking contrast in the nursery to the Ives, Rentz, Concord and Hartford around them, forming a thicket of branches and leaves. The Alvey, has made fine growth, and curious to say, is well set with quite compact bunches. Wherever this grape can be made to yield annually a good crop, it should be largely cultivated for wine.

The Clinton is vigorous and productive, though warty excrescences are beginning to crumple the leaves.

The Creveling has been quite largely planted here. Some years, as last, it has borne a full crop of well-filled branches, but with Mr. Knox, as elsewhere, productiveness is not a habit with it. Yet so early and so good, its cultivation will be extended; the suggestion of Mr. Merceron being adopted, to plant it alternate with fuller flowering sorts, which may be trained above it.

The Catawba is loaded with fruit and rotting but slightly. The leaves of this and the Isabella shows some signs of mildew.

The Diana has a sorry account to give for all the careful culture bestowed upon it. It is rotting badly. So, we may add here, is the To Kalon, the Beautiful,—too often, at harvest, the Desolate.

The Herbemont is weighty with the coming harvest. The Iona encourages further care. There is a show of mildew, but the older vines promise to carry through a fair crop. Its bunches are much too loose. The Israella has many really handsome bunches and will probably ripen them well, though it sickens one to see the leaves along the row wearing a scorched and ruffled air.

The Martha, a row of ten or fifteen vines in the third year, beside the two just alluded to from mischievous intent mayhap, asserts itself nobly. Its foliage, leathery and shining, its great stretch of canes, and its fine crop of fruit, clearly betoken its kinship to the Concord. The bunches are medium size and compact—berries medium. No imperfections of vine or fruit to be seen.

Of the Roger's Hybrids, after careful survey with Mr. Knox, we concluded the most promising here, at this time, are Nos 3, 4 and 19. These are perfectly healthful and productive. Three and four were coloring. Number 15 is bearing meagrely and is mildewed.

The Ives, in considerable numbers, third year, promises all its friends have claimed for it. The vines are as vigorous, healthful and productive as the Hartford. The bunches and berries are good size and now well colored.

It is difficult to speak warmly about strawberry vines—the refreshing harvest having been gathered and the golden gains. Everywhere the plantations old and young, seemed in admirable vigor. The sun shines down with all his "solstitial fervor," yet we cannot see that the Jucunda, as has been reported, winces in the least. A great company keep busy cultivating, layering across the open spaces and in pots. The latter ought to be popular, for they are very strongly and massively rooted plants. The method of culture is in rows two and a half feet apart, linear but not lateral extension being allowed. A mulch of straw put on in the Fall is simply pushed back from the plants in the Spring and removed entirely for thorough cultivation after planting. It is a mistake that Mr. Knox subsoils before setting his beds. Of course the plants set between the vineyard rows enjoys this advantage (if one,) of previous trench plowing. He plows deeply, as a thorough farmer would to plant corn, harrows and rolls, then, spring or fall, as it is convenient, sets his plants. When the land needs it, he enriches it with well rotted manure.

ECONOMICAL MANAGEMENT OF GARDENS.

BY GEORGE THOMPSON.

Mr. Henderson, in his "Gardening for Profit," says that it requires about one man per acre to carry on successfully, and in a private place about the same. There are very few private places in this country where that amount of help is given, nor is it necessary, except where they have much glass. I propose to give a few short articles to show how a private place can be kept up with much less force than is generally considered indispensable. The first thing to be considered is the laying out; unless that is done properly all work is done to disadvantage. Lay out the lawns and plant them so that all short grass shall be cut with the mowing machine, and locate the roads and walks so that the horse-roller can be used instead of the hand-roller. I find that the best, easiest and quickest way to keep roads and walks clean is to start the scuffle hoe over them as soon as it has done raining, then rake them and let the horse-roller follow immediately. By that means walks and roads can always be kept clean and firm with little trouble. A man can do more in an hour after a rain than he can in half a day when it is dry and hard, and it looks better. I have met with several people that condemn the mowing machine; they say it ruins the lawn, encouraging wild grass, etc. My experience is that, managed right, it surpasses the scythe in keeping up a lawn; but it requires intelligence to work it and use it when the grass is the proper length, and not every eight or ten days, as I have known some people do. Another cause of failure has been cutting with the scythe, the first time, too close to the ground, which gives the Crab Grass a chance to start. As a general rule, the lawns in this country will not bear such close cutting as in Europe. Most people think that the machine can only be used when the grass is perfectly dry. I have frequently used it after continued rains, when the water splashed up to the horses' belly in low places; then we have to use leather shoes on the horses' feet. But I would rather cut when dry, but was obliged to cut wet or let the scythe do it, as it was getting too long. I always use the box to catch the grass, as, by so doing, I can leave it four to six days longer. I have fully tested the difference between the machine and a first-class mower. A lawn that takes a first-rate mower two days to cut, a machine will cut in about five hours.

A NEW GRAPE PATENT.

BY WILLIAM GRIFFITH, NORTH EAST, PA.

To all whom it may concern:

Be it known, that I, William Griffith, of North East, in the County of Erie and State of Pennsylvania, have invented a new and useful improvement in the mode of propagating Grape Vines in open field culture; and I do hereby declare that the following is a full, clear and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which the process is shown, in a vertical section of the ground in which the cuttings are placed for propagation.

I will first explain in detail my mode of propagation, and then indicate wherein it differs from other known modes. The ground is first prepared by the usual mode of cultivation for the reception and development of the cutting, so as to be ready at what may be described as the season of early garden making. This season is, of course, dependent upon climatic conditions. In the region in which I live it will ordinarily be about the 10th of April. It must, under all conditions, be so early in the spring that the earth is still at a reduced temperature, before the increasing power of the sun has entirely overcome the influence of winter, but not so early as not to have heat enough in the earth to develop vegetable action. The pieces of vine to be sprouted are cut in pieces of say two inches in length, and with a single bud at

one end. These cuttings are then planted in rows, at a distance apart of say from four to six inches, and so that the bud shall be uppermost and about even with or a very little below the surface of the earth. The whole is then covered with a cold mulch of saw-dust, tan or other suitable material, to the depth of say from one to two inches. I prefer, under ordinary conditions, a covering of two inches or a little less. The object of this mulch is to protect the earth from the heating influence of the sun, and retain it at a temperature lower than that of the earth when not thus covered, so as to delay the sprouting of the bud until the rootlets have had the opportunity to sprout and provide the sustenance which is necessary to the support and development of the sprout. These rootlets will grow at a temperature lower than that which is necessary for the development of the sprout from the bud, and by delaying the expansion of the bud I am enabled to secure the life of the sprout by first developing the growth of the roots to the extent required for the vigorous life of the sprout. When the roots are started, the gradually increasing heat of the sun will effect the expansion of the bud and growth of the sprout, which, passing through the mulch, will develop on reaching the air. When the sprout is sufficiently developed, I remove part or the whole of the mulch. The ordinary mode of open field propagation is to use long cuttings, with two or more buds, generally three or four, which are planted with one bud out of the ground. The growth of the shoots from these buds is always uncertain, and the plants are too feeble, from a lack of root, to supply the requirements of the shoot. On an average, probably two-thirds of these cuttings are entirely lost, so that less than one-tenth of the buds used are developed into vines. To remedy this great waste, resort is had to hot-house culture, in which a mulch has been used; but as the earth is warm in such cases, an artificial stimulus is given to the growth of the roots by heating the earth in which the cuttings are planted from below, so that the temperature being greater at the lower end of the cutting than at the bud, the rootlets may grow faster than the shoots from the bud. But as this difference of temperature is necessarily slight, great numbers of the buds are lost, from not having an adequate supply of nourishment from the roots; and probably one-half of the buds are lost in this mode of culture, which is expensive and subject to the additional objection, that plants transplanted from forcing beds to the open field are delicate and wanting in the vigor of plants growing in the open air, under normal conditions.

The difference between my mode and either of these is in the use of cold mulch in open field culture, applied sufficiently deep to retain the low temperature of the cold earth, and which distinguishes it from all known modes of open field culture. The difference between my mode and the forcing bed process is that I rely upon retaining the bud at a temperature below that required for its development until the roots which will grow at that temperature are developed; while in the hot-bed process, the growth of the roots is made to depend upon the stimulus of artificial heat applied in excess to the roots.

What I claim as my invention, and desire to secure by letters patent, is the mode of propagating Grape Vines, substantially as set forth, in open field culture, by covering single bud cuttings with a cold mulch, applied in sufficient depth to keep down the temperature of the buds, and thereby retard its sprouting until the roots have been adequately developed.

NOTES AT ROSEDALE, THE RESIDENCE OF ROBERT BUIST, ESQ., AND BLOOMSDALE, OF D. LANDRETH, ESQ.

BY WALTER ELDER.

When we stated in the columns of the *Monthly*, six years ago, that there was not much dissimilarity in our evergreen shrubbery, we did not anticipate that, in a few years, we would be presented with such a number of genera and species of such diversity as are now to be found in our first-class nurseries. While on a visit recently to Rosedale, the highly renowned nursery of R. Buist, Sr., we opened our eyes upon a new and superior class of evergreens of far greater beauty and dissimilarity than our fondest wishes could have dreamed of. We were animated with delight at their superb habits and comely looks. The sizes they attain at maturity are bushes of two feet tall to trees of the most gigantic growth—that is, from the Arborvitæ Tom Thumb to the wonderful tree of California. Some are erect and stately in habit; others are procumbent and graceful, their various shades of verdure, from pale silvery-green to deep bottle-green; and some are so variegated that they look as if golden dye had been splashed upon them; some are of close, compact forms; others widely extend their branches. Many of them may be clipped into different forms and kept as shrubs and hedges. They are so hardy as to withstand the rigor of our severest winters, and the heat and drought of our dryest summers, without losing a twig. Many are now large enough to set out in

rural improvements. Planters and designers should go and see them before they mature their deliberations about arboral embellishments for best effect; for they will, ere long, make a revolution in the decorations of the grounds in ornamental gardening. A few species may be set out every year upon old, established grounds, that they may keep pace with the progress of time. Here are a few of the names we wrote down: *Buxus*, Fortunii and rosmarinifolius; *Cedrus* Africana; *Cephalotaxus*, Fortunii, japonica and drupacea; *Cupressus*, Lawsoniana and funebris; *Juniperus*, phœnicea and oblonga; *Libocedrus* decurrens *Retinospora* anifolia, *Thuja*, cristata and Lobbii; *Taxus*, Dovastonii and variegata aurea, and a Rhododendron and an Azalea that flourish and bloom abundantly in the full sunshine and exposed to the winter's blasts. We were shown a new seedling *Pyrus* (Cydonia), so heavily laden with fruit the size of the Morris White Peach that it lay spread upon the ground. The fruit is yellow, with red cheek, and very transparent and fragrant. One put in a drawer or trunk will perfume all the clothes with a sweet, Apple scent, and keeps sound eight months, it also makes a high-flavored preserve. There are fine hedges at Rosedale of American, Chinese and Siberian Arborvitæs, Norway Fir and Hemlock Spruce, all evergreen. The following are deciduous: Locust, Beech, Maclura, Althea, Privet, Pyrus and Forsythea; the last four bloom profusely in their seasons and are very ornamental.

Mr. Buist still retains that energetic fire for which he has long been distinguished. His soul is as young as it was forty years ago. Whatever is new and choice he must have it, and will acclimatize it if he can. What an immense impulse he has given to the progress of horticultural improvements! His nursery is a vast depository of valuable horticultural productions. Ornamental trees and shrubbery, ligneous and herbaceous flowers, and perennial vegetables and all kinds of choice exotics in his extensive glass structures, and a correct nomenclature kept up.

We once suggested to the readers of the *Monthly* the propriety of so pruning some of our evergreen trees as to keep them as large shrubs, so that a greater number and variety might be grown upon a given space of ground, without apparent confusion, and would make a greater diversity, and allow a more extensive view of the grounds and the surrounding landscape from the mansion over their tops. We did not then know that the practice had been in successful operation for many years at Bloomsdale, where David Landreth & Son raise their famed garden seeds, but a visit lately to the place acquainted us of the fact. We gave an account, two years ago, of the very handsome trees growing there, made by scientific pruning; and now we will describe only a few specimens of trees, dwarfed and kept as shrubs by pruning.

An Austrian Pine is the shape of an umbrella; perfect in form; five feet high and its branches ten feet in diameter on top; the stem is in the centre, free of branches as the midstick of an umbrella; the top is thickly covered with short shoots and an abundance of foliage.

A Norway Fir is the form of a Chinese parasol; the stem is bare six feet from the ground, and above that some tiers of branches grow out perfectly horizontal, and form the head; the main leader on top grows erect, like the ornamental top of a parasol; it makes an excellent sunshade.

A Hemlock Spruce in the form of a haycock; perfectly shaped; branchy and leafy from the ground, all over, and finely rounded on top; the foliage is so plenty that no part of the wood is seen; it just looks like a green haycock.

There are many others of curious forms; but from the above facts, the readers may well imagine that many of our evergreen trees can be readily pruned into various figures of different sizes to suit their fancies, and a large number of species may be grown upon small places. The pruning must be begun when the trees are small.

We took a look through the seed department of Bloomsdale, but we cannot find language to express our admiration and bewilderment at the immense extent of the grounds and the magnitude of the various crops and their skilful arrangement. The many huge buildings of ingenious construction; the improved machinery for threshing out and winnowing; the expeditious and careful mode of harvesting; the high system of culture; and the expertness and precision in which the seeds are made into packets for sale. Just think of a large granary filled with Landreths' Extra Early Peas alone, and scores of sacks with four bushels of late Cabbage seeds in each! Who, after this, will be so infatuated as to pay high wages to men to gather seeds and clean them with their hands?

LARGE APPLE TREES.

BY G. FOSTER, EAGLE ROCK, N. C.

I see in the *Monthly* for September a notice from the *Jackson Standard*, of a "Large Apple Tree." We can beat that down here. On the farm of Charles M. Horton, in Little River District, Wake Co. N. C., there is an apple tree which is

said to be the largest in the State. The fruit is most excellent; of the variety here designated "June Sweeting." I have had it carefully measured by Mr. Horton himself, expressly for the *Gardener's Monthly*, and can vouch for its accuracy. It is as follows:—One foot from the ground it measures eleven (11) feet in circumference; at the first branch,—8 feet from the ground—*nine* feet *nine* inches,—and is *fifty-seven* (57) feet through—id est. The limbs cover a circle fifty-seven feet in diameter. If any of your readers can beat this we would like to hear from them.

HORTICULTURAL NOTES FROM SALT LAKE CITY, UTAH.

BY JOHN READING.

Just through with my budding, and thinking there was something yet to be done, it occurred to me that it must be to send you a few notes for the *Gardener's Monthly*. We have had a very hot time of it this summer and also a pretty sharp time with the Grasshoppers; they are here in great numbers, and I among the rest suffer severely; they have headed off my young stock and eaten up my cabbage, carrots and celery. There are some things they are particularly fond of; the fruit of apricots and peaches they eat up and leave the pits hanging on the trees; the apple trees they strip off the leaves and leave the fruit exposed, which makes the trees have a peculiar appearance. Oats and barley have suffered severely, our wheat was too ripe for them, the corn crop suffers severely.

Ripe grapes showed themselves in the market on the 23rd of August, peaches on the 17th. I do not know what variety of either, the grapes were white, we have quite a variety of grapes here; I will try and get the time when each ripens so as I can send you word. Grapes are sold for 50 to 75 cents per pound. We have a variety cultivated here commonly called the California grape, I think it is what is known as the Mission grape; it is very prolific, and would pay if cultivated extensively; it makes good wine. Our apples are in great variety, I suppose we have over thirty of imported kinds, and seedlings in abundance; we have some seedlings that are very good, will keep till July the following season. I think our best imported ones are Red Astrachan, Summer Queen, Porter, Rambo, Rhode Island Greening, Esopus Spitzenburg, Winter Pearmain, Peck's Pleasant and Virginia Greening; there are others very good, but there is a variety of opinion on the subject. Peaches do well, and we are improving in quality by importation. Our best apricot is a seedling raised here, it is a little tart, unless it is very ripe. Pears do well. Gooseberries are very fine, the most prolific kind we have is Woodward's Whitesmith; they do not mildew. Red Dutch Currant is getting in great demand. We have, heretofore had to depend on the wild Currant (*Ribes Missouriensis*), I have some very fine ones of that variety; they measure 2½ inches in circumference, and are black; the yellows average about the same. Strawberries do very well, Wilson's Albany and the Vicomtesse are the best and most prolific with us.

Raspberries, we cultivate two varieties, Knevet's Giant and Brinkle's Orange; Knevet's Giant does far the best, and the fruit is *very fine*. We are very deficient in ornamental shrubbery, but I think in about 2 or 3 years more we will get the thing moving. We have to look out for the "staff of life" out here, and have to get a good supply on hand.

Our potato crop will fall short this season on account of the grasshoppers taking the vines, but in all we will have a plenty to get along with.

We have no Horticultural Society formed here, but we have a Gardeners' Club, poorly, however, attended. I think of trying to get a Society started, see what we can do and get the statistics from the different Counties in the Territory, as we have both a temperate and a tropical climate. What do you think of it? Would it be advisable to do so? We can then let you know what we are doing out here in Agriculture and Horticulture.

[There is no surer way to develop the material interests of any place than to establish a Horticultural Society. We could give philosophical reasons why this is so, but experience alone shows it to be a fact. In the West, wherever we find a live Horticultural Society, you find a more prosperous place than you do in others, as a rule. The social element which makes Boston, Philadelphia and Cincinnati so popular as *residences*, as well as places to do business in, owes much to long established Horticultural Societies of these places. Horticulture is the cheapest of the fine arts. The poorest can enjoy it, and a love of art once originated grows with wealth, when the highest conditions of refinement and intellectual enjoyments follow in its wake.

By all means encourage the formation of a Horticultural Society in Salt Lake City, and let us hear from time to time an account of your proceedings.]

THE TILDEN AND OTHER TOMATOES.

BY JAMES PERKINS, NEW MARKET, N. J.

I noticed in your January issue, two articles refering to the Tilden Tomato, one by James Holden, of Haunmonton, N. J., and another by J. C. Johnson. Now neither of these gentlemen give us any dates as to the time of the ripening of the fruit, and just here let me say that, as a general thing, dates are of the first importance to the market gardener, for by it he determines at once the value of the vegetable to be grown.

I have made some test of the Tilden Tomato, and compared it with other varieties, and with your permission I will give the benefit of my experiments to the public.

In the early part of 1866, I procured a quantity of Tilden Tomato seed from J. J. H. Gregory, the well-known and highly reputed seedgrower of Marblehead, Mass. I planted these with the New York Red, Bate's Early and Cook's Favorite, in the same hot-bed and on the same day, in the last week in February, marking the location of varieties with care. On the first of April I transplanted all of them into a cold bed, previously prepared for their reception, setting the plants about 8 inches apart each way. Here they were allowed to branch and blossom until the 20th of May, when all were set out in the same field, about four feet apart each way. The soil and position were favorable for an early crop. They were fertilized with well rotted horse-manure.

Each variety received the same care and culture as the others, and all grew equally well, except the Tilden which out-stripped the others a little. In ripening the fruit I obtained the following results: The New York Reds gave me my first ripe fruit on July 10th. Bate's Early and Cook's Favorite gave me one or two of each on July 13th and on the 23rd of the same month I picked my first ripe Tilden, it being 13 days later than the New York Red and too late to secure the best profits of a crop.

So much for the *time*, and now as to the *manner* of ripening. I observed that the New York Red and Bate's Early, ripen uniformly, reddening up to the stem, while Cook's Favorite is a little tardy and one-quarter of the Tilden next the stem remains a greenish-yellow after the other part appears perfectly ripe.

In regard to their preserving qualities, I may say it was a rare thing to find a rotten specimen of either of the first two varieties, while the Tilden generally specked where two touched each other or the ground.

By submitting each variety to a water test I found the density of the New York Red far in advance of all others. About three-quarters of them would soak to the bottom, while the Tildens would all float and a large majority of them one-quarter out of water. I think the quality of the Tilden is as far inferior to the New York Red, as it is lighter than that variety.

I have not grown the Tilden Tomato this year, but I have been a close observer of it as grown by others. Indeed in the early part of the season I sold tomatoes to one of its victims, whose plants looked equally well with mine and found his experience with Tildens singularly like my own.

From actual experiment and what I have seen in the results of several trials, I have come to the very reasonable conclusion that the Tilden Tomato is a worthless variety and should never be put out to deceive the people with its fine appearance.

I have been very particular in saving the seeds of the Tildens grown by me last year, and would be most happy to furnish Mr. Tilden or any person acquainted with the variety, a sample in order that they may know whether I have true Tilden or not.

[How does the "New York Red" differ from the Large Early Smooth Red of the seed stores? There are so many new varieties now and to us seem so nearly alike, that the endeavor to identify, in our mind the kinds we read about "bothers us some."]

PRUNING PEARS.

BY "PALISADES," NEAR BALTIMORE, MD.

The great interest taken in the cultivation of Dwarf Pears all over the country by thousands of amateurs, received many times a check by the indifferent results, after years of expectation followed by disappointment. To a part this may be traced to the misunderstood rules of pruning, simple as they are and which can be set down as two-fold. First, Every dwarf pear tree ought to have by the pyramidal form one, and by the rose or bush form more main leaders elongated the height of the tree, and as many side leaders as there side branches of the tree. These leaders must be left unchecked in spring and summer, and topped to one half more or less, in the first part of August.

All the upper side shoots on these leaders are to be transformed in fruit-bearing limbs or spurs during spring and summer, as soon as they reach a length of over 4 inches. by pinching the upper end of it to about 2 or 3 inches. If that pinching is done to early, or before the lower part of the shoots has got some hardiness, then the remaining ends will dry up and show next season little dry sticks, the dormant eyes on the side of them will, most times push out again in the following seasons, but in weaker shoots. The shorter shoots on the lower part of of the leaders must be left untouched and will form by themselves into spurs two years after. By this way the fruit spurs are formed near the lower part of tree and extend with the growth to the upper part and outside, while by any other pruning the pears will mostly be formed on the outside and the top of the trees. By allowing the leaders an unchecked growth, the pinching-in of the side shoots will not interfere with the healthy development of the tree. Between standard pear trees, I found in a plantation of six hundred, Seckel most affected by blight, after that kind Dix, Tyson and Buffam, less Bartlett and Clairgeau.

The Gardener's Monthly.

PHILADELPHIA, NOVEMBER, 1867.

☞ All Communications for the Editor should be addressed, "THOMAS MEEHAN, Germantown, Philadelphia," and Business Letters directed to "W. G. P. BRINCKLOE, Box Philadelphia."

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THE CATAWISSA RASPBERRY.

In the convention at St. Louis, a gentleman introduced a resolution condemnatory of the whole class of autumn-bearing Raspberries. From what we saw at the West, we do not wonder that such a resolution was proposed for, so far as the Catawissa variety is concerned, it is clear that its proper cultivation is not understood, and, consequently, its great merits have never been appreciated. Nowhere did we see a Catawissa Raspberry that was worth the room it occupied.

Here in the East no amateur would be without it, when he once understands it. All that is necessary is to *cut it down* in the spring to about two feet, and pile on *plenty of manure* about the root on the surface of the ground. The plant never dies out by disease or winter as do other kinds; and when you once have a plantation of this kind it is a permanent institution. A neighbor of ours, who was among the first to give his $5 per dozen for them, recently said to us, we might take every fruit tree from his garden, only to leave him these. The same plants had been there, we believe, for twelve years, and had increased in productiveness with each year. From these twelve plants, though using the fruit for suppers freely, they had enough to put away as preserves. This is no isolated case. There are scores in our immediate vicinity who would on no account be without this fruit in their gardens. At the recent great exhibition of the Pennsylvania Horticultural Society, the number of dishes shown by amateurs indicates how generally it is cultivated. There were more plates of Catawissa Raspberries than of Concord Grapes.

For market purposes the variety is worthless. The fruit is so very soft that it crushes by almost its own weight; but that is nothing against its growth by those who supply their own tables. For our part, we regard the introducer of the Catawissa Raspberry as among the great benefactors to American Pomology whose names should ever be held in grateful remembrance.

HOW TO HAVE HEALTHY GRAPES.

One has to be continually on guard against pushing a favorite theory to extremes. For instance, a few years ago it was the general belief that parasitic fungi attacked only vegetable matter in a state of decay. Then came the discovery that they attacked healthy plants, and now we find a tendency to go into the other extreme, and to believe that most of the diseases of plants are caused by parasitic fungi. There is no doubt that, in many cases, these parasites attack, injure and even destroy plants previously perfectly healthy; but, on the other hand, it is equally certain that many forms of mildew exist only after previous disease, or bad treatment which we may call disease.

This is particularly true of the Grape. A man who grows Grape vines in pots can produce mildew at will. Let him take a young vine, say in a 3-inch pot, and put it in a badly-drained 12-inch pot, water it, say three times a day for about 3 days, and within six days pale yellow spots will be seen on the leaves. If he examine the roots then, he will find that the fibres, white and thread-like when he potted the plant, are now black and nearly rotten; and in about three days more he finds the yellow spots have a white, powdery fungus growing all over them; and in a few days more the leaves are "mildewed" and fallen. Whether it is that roots must have a certain amount of air to keep healthy, and that they cannot get this air when enveloped in water, and thus smother and die like an animal,—or whether this water is favorable to the generation of gases unfavorable to healthy root-action; in popular language, whether soil "sours," or the roots "smother," does not matter here. It is enough to know that the result is mildew.

This is well understood by the under-glass Grape grower. Before making his cold vinery, he makes a *dry* vine border. If so low that he cannot well underdrain it, he *elevates* the border entirely above the level of the natural soil. Then he never stirs the surface of his border for fear he should *drive the roots down* into a damp region; and if from any cause he finds the roots have got down into a damp subsoil, and have lost surface roots, which he soon knows by the fruit failing to color properly, he bares the roots and carefully *lifts them to the surface.* Those who make high and narrow banks for vine borders, *never fail to have healthy vines* in cold graperies.

Now, the out-door grape is generally supposed to prefer hill sides. But this is only because they are there less likely to *get wet feet.* If on the hill side, the soil is terraced and subsoiled, and otherwise

manipulated, so that it will hold water for twenty-four hours, the roots will suffer, and mildew follows as surely as if the vine grew on low, soggy grounds.

The present season admirably illustrated the correctness of these remarks. East of the Alleghenies, where the soil has been saturated with water, the Grape never suffered so before. Mildew is "terrible" there. Tender kinds, like Iona, Delaware, Rebecca, &c., are not "fit to be seen." On the other hand, vines west of the Alleghenies never made so perfect a show. The old Catawba, which has been buried beneath reams of Catalogues for many a year, is as good as ever; and the Delaware, which has never given general satisfaction in other years, was, this year, wherever we saw it, from the Alleghenies to the Mississippi, as well laden with its delicious fruits as its best friends could desire. When we consider that in this region the drought has been so severe that cattle, in September, had to be fed, through pasturage being burned up—the dryest time, we were told, on record—we shall understand why the Grapes have done so well.

We are well satisfied that many of the theories advanced to account for the failure or success of vine growing are wide of the mark. The influence of large bodies of water, shelter from winds, exposure to sun, peculiarities of soil, mineral elements, systems of pruning, manner of training, over-production, style of propagation, selection of varieties, have not near as much to do with success as they get credit for. A thoroughly well-drained spot, where the water will pass away as fast as it falls, is more important than all—the one thing needful, without which the closest attention to all the other points together will be of little avail.

A word now as to under-draining. We do not believe that the usual way of proceeding with tiles will pay the vineyardist, because there are so many localities where the soil is naturally adapted to vine growing without this, that he who has to endure the additional expense before he can grow Grapes. cannot compete with the other. It will be much better in soils that are likely to become water-sogged, even temporarily, to surface drain, by *throwing the soil up into beds* as we do for Asparagus, by which the water will pass away readily as soon as it falls, from the roots of the vine.

These observations will, we trust, be the commencement of a new era in vine growing in this country. Instead of so much labor and expense in trenching, subsoiling and underdraining *beneath* the ground, to encourage the roots down and be rotted, efforts will be made to prepare the earth all *above the natural surface*, where the roots will be dry and warm, and near the oxydizing agencies so necessary to the proper preparation of plant food. We expect the usual objections about the plan not being "according to Nature; but we are willing to wait and see. If "enterprising" men do not go and get the plan patented, we expect to see it in general use.

RECOLLECTIONS OF WESTERN TRAVEL.

Starting a couple of weeks in advance of the time appointed for the meeting of the National Pomological Society, in order that we might be among the early birds who are favored with the best worms, we left Philadelphia about the middle of August, and took the cars of the Pennsylvania Central Railroad for Pittsburg. The refreshing rains, spread over the whole season, gave a glorious green color to vegetation; and, much as we love our own Pennsylvania, always clothed as she is with beauty, and the evidences of prosperity every where around her,—and especially beautiful as she appears to the traveller along this line of railroad, she never seemed half so lovely as now.

But of Pennsylvania we can speak any time. So not delaying at Pittsburg longer than to breakfast, we took the Cincinnati cars via Steubenville, and a few hours soon brought us into northern-western Virginia, across the narrow neck of which we have to pass into the borders of Ohio. It is a beautiful country, very much like Pennsylvania, but characterized along the whole route by a thinness of inhabitants, and a seeming want of enterprise of any kind. Crossing the Ohio and entering Steubenville, horticultural matters strike one at once in the great health and luxuriance of the peach and apple trees,—but the partly parched vegetation, showed we were approaching the dry zone of which we had heard so much this season. Yet the fruit trees did not seem to suffer so much, but were bearing moderate crops of very fine fruit. The cultivation of the peach, however, we found not popular in this section of Ohio,—for notwithstanding the healthy growth, and freedom from many of the diseases of the east, we were told good crops were the exception.

The country from Steubenville to Cadiz Junction, about thirty miles, is apparently very poor but pretty,—as is indeed the whole of this route, which is its redeeming feature, for the road and its management is but a third-class concern. If you are privileged to travel under the protection of a lady you may expect tolerable accommodations; but if you are unlucky enough to be only a gentleman,

your most indignant protest will not save you from being thrust into a cloud of the vilest kind of tobacco smoke. Our protest at last got us into another car,—but who likes to be frowned on as if opposed to the innocent enjoyments of other people? In short, one who "does not like to complain" had better not travel this road. The road winds along rivers and creeks the whole way to Columbus. Cross creek, the Conelton, the Stillwater, one of the feeders of the Tuscarawas, which is a branch of the Muskingum with which it unites at Coshocton.

The elevated, and in many cases rocky banks of these streams are clothed with oak, maple and other trees, but which do not grow to any thing near the height or diameter of the same kinds in Pennsylvania or further west. The hemlock and pine were very small, but this is natural for them at getting below their natural latitude. But the buttonwoods and elms along the creek bottoms were mere pigmies, instead of being as they should be in favorable soils, amongst the monarch of the arboreal world.

Wheat had been grown largely in the past, but this had been in great part abandoned, and the country generally given up to sheep or cattle raising.

Improved farms along this part of the route brought about $50 or $75 per acre, if within one mile of the railroad, but beyond that they ranged at mere "nominal" rates.

There are a few coal openings along the route, but beyond this little enterprise—no fruit trees, live fences, improved farm buildings, comfortable dwelling-houses, or any thing to indicate that a live people lived there,—while the water-power rolls its wort less life away to the ocean, and yet murmuring to every passer by that it wished to be made use of.

Coshocton shows more horticultural enterprise,—and onward to Columbus every thing seems more prosperous. Immense crops of corn and sorghum covered the rich sandy plains through which, along the river routes, the railroad passes. Enterprise had, however, an early start in this direction. Many years since a Virginian, disheartened by prospects at home, freed all his slaves and settled in these parts, devoting all his wealth to agriculture on a large scale, and the development of industral enterprise. The Black Run Canal, Adams' Mills and other well known improvements along this section shows what one intelligent and determined man can do.

Arriving at Columbus, we set ourselves at once to explore the horticulture of the place. To every enquiry where we should see the best gardening, we received from the citizens the one universal answer, "Hanford's," so to Hanford's we went. What we learned there we will tell further next month.

HORTICULTURAL PATENTS.

So many inquiries reach us as to what is the "Griffiths Patent" for propagating grape vines, that in another column we give the whole matter entire. It will be seen that it is substantially the same as Mr. Barnett's idea, namely, that the discovery of successfully getting out roots before the buds burst is a novelty for the knowledge of which the public should pay these gentlemen handsomely.

It is a very remarkable circumstance that all these "new discoveries" come from those whose horticultural experience is a recent formation, and yet it is not perhaps remarkable for it is just from this class that such novelties may be expected. After awhile they find "the more they learn the less they know." The using of a mulch over cuttings during the winter is of universal practice. The idea has been that it prevented the cuttings from being thawed out, and kept down changes of temperature until the regular spring time came. Mr. G., takes the same facts, but attempts another explanation, which is just as unphilosphic as the practice is stale. If the theory had been the object of the patent, instead of the practice, no one could object to its novelty.

We rather suspect, however, that friend Griffiths whom we believe to be a very amiable and clever gentleman, has himself no intention of claiming anything from the patent. He cannot possibly believe that a principle and a practice, which have been well understood by every professional propagator for generations, originated with him. We prefer to suppose that it is merely a specimen of advertising of a "flanking" character, which those who understand the science of advertising know well how to employ. A "Patent" or any similar movement will often get one prominently before the public, much better than the heaviest "front" attack in regular advertising way would do. Mr. Griffiths, for instance, might never have been honored by an Editorial notice in these pages, but for this tactical skill; and for this we give him full credit, if we cannot do so for the novelty of his patent.

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

FRIENDS OF THE GARDENER'S MONTHLY.—We trust our friends do not suppose that because we seldom notice the compliments they pay us, we do not appreciate the kind manner in which they are pleased to express themselves as to the value of the Magazine. The fact is did they come only occasionally we might print them. They are too many to print all, and all too good to select from, and we content ourselves with feeling that if we do not deserve all that is said, we will try and improve till we do. A Canadian correspondent who tell us, "We (the Toronto Gardener's Society) subscribe for only one Horticultural paper from the United States, the *Gardener's Monthly*, and consider it at least equal in value to us with the several Horticultural magazines we get from Europe," has suggested to us to say this much to all our friends.

MACADAMIZING A CARRIAGE ROAD.—*Querist, W. Philadelphia, Pa.*—"I am about macadamizing a carriage road to a new dwelling I am building, and propose to dig out one foot deep for the broken stone. A friend tells me this is not enough, that good road making requires at least eighteen inches; as I have about one-eighth of a mile to make, and stone costs considerable here, I don't want to use more than is necessary, and yet want to make a good job. What is the usual depth?"

[You seem to use "Macadamizing" and "broken stone" as syonymous. Macadamizing consists in breaking hard stone so fine, that it will pack so close as to prevent any water going through the mass of road material. The great aim of macadamizing was to keep the road bed perfectly dry. We have never seen a true macadamized road in the United States, and we doubt whether with the disintegrating power of our hot summers and heavy winter frosts, a macadamized road would not soon abrade and wash away.

The common plan here is to break the stone about the size of duck eggs, which is filled to within a half inch of the surface, on which the gravel is laid. If the road bed on which the stone is laid is dug out *convex instead of flat*, ten inches of broken stone is enough. It forms a stone arch in this way. It is a common practice to put large stones at the bottom of a flat road bed and small stone only at the top. This is a great error. After a thaw in spring, the heavy stones sink in the slush by their own weight, the slush being lighter than the stone works up through the crevices, and the road soon becomes good for nothing.

Almost all gentlemen think road making so simple an affair that they seldom seek professional advice, but employ common laborers to "dig out" and "fill in" the road; but there is nothing in all gardening in which more money can be saved by paying for the *best* professional advice than in this. A man had much better make his own breeches all his life, than make his own carriage road once.]

RETURN FROM EUROPE OF MR. SARGENT.—We are very much pleased to hear of the return to this country of this generous patron of American gardening, after a two years tour over almost every part of the continent of Europe. We have on hand some notes from him, giving the results of his observations on certain points of contrast between American and European gardening, such as the quality of our lawns, difficulties of fruit growing,—liberal employment of variety of plants, etc., which we shall give in our next number.

GRAPE GROWING NEAR BALTIMORE—"*Palisades*," a well known and intelligent correspondent, says:—"My vines on 7 acres did well, but Delaware and Iona had some mildew and lost leaves; Ives are the healthiest of all, but I am not fond of the grapes for eating. Mr. McCullough, of Cincinnati, has sent me a box; I believe in them for wine. Grapes around here have rotted and mildewed this season."

COMPENSATION FOR ANSWERS.—A correspondent very kindly says, while sending us a string of inquiries, he is quite willing to pay us for the answers. We ask nothing but good will. Any thing we know, or can find out, is cheerfully at our friend's service in this department. Any original facts or observations sent us in turn is pay enough for us.

AUTOMATON GATE—*G., Phila.*, writes:—"Some years ago I procured from the patentee's travelling agent an automatic gate which was opened by the carriage as it approached. Where can I get such an one for my present residence?"

[If any of our readers know of such we should be glad to hear of it. All the automaton gates we have ever seen proved failures in a few months.]

KEYES' TOMATO.—*Western Penna.* says:—"Those who palmed off this variety as a novelty thirty days ahead of any other article in the market, trenched as closely on the fabulous as may be considered safe for men having a character for veracity to sustain. It is just ripening here now, a week later than the Early York sown at the same time."

EXTRA EARLY TOMATOES.—A correspondent enquires whether we think it possible for any tomato to make such a "big jump" over all others at once as to ripen "30 days earlier than any other variety." Certainly we do and more to. We have some in this locality not merely 30 days, but 200 days in advance. They are already Oct 20th just coloring. By using this celebrated variety the fruit ripens actually *before the seed is sown.* Price $10 per packet of ten seeds.

STORING CABBAGE FOR WINTER.—*A lover of Cabbage, Harrisburg, Pa.*—We know no better plan than the old one frequently noticed in these pages, to plant them heads down and roots up, covering the heads about an inch thick with soil. Brush wood or something of the sort may be put over to keep away the heaviest of the frost. They can be got out easily in winter as the crust of earth cracks like glass with a blow from a pick. Reversing them keeps out the water, and frost does not hurt when in the shade.

NAME OF PLANT, "AMARANTH"—*J. W. K., Denton, Md.*—"Please to give, in your next issue, the true name to flowering shrub, a specimen of which is herewith enclosed. The bush grows well in our vicinity, to the height of ten feet."

[*Baccharis halimifolia*, the Groundsel-tree. It is a pleasure to name specimens neatly pressed and dried, instead of the fragments often sent.

Books, Catalogues, &c.

GRAY'S MANUAL OF BOTANY—5th edition. New York: Ivison, Phinney & Co.

On an average of every four years, for the last twenty years, a new edition of Dr. Asa Gray's work has been called for, which is very gratifying to those who feel the importance of science in the elevation of all the material and moral interests of a community.

Botanical science particularly must be much more popular than many suppose, when so many copies of such works can be so readily sold. It teaches us another lesson. We have heard it said in English nurseries that "any thing will do for the American market," and many of our horticultural book makers act as if they supposed the reputation deserved; but the avidity with which truly scientific works like this are bought up by the public, shows that the community of readers is much more highly cultivated than many of those who would teach them are aware.

We need not say that this edition, like every thing from the pen of Dr. Gray, is characterized by scrupulous accuracy, even in the matter of typographical errors, so difficult to entirely prevent, with the exception of *Manchina* for mœnchia, we doubt whether there is an error in the whole 700 pages.

In comparing this edition with former ones, we find many changes and additions. Some plants supposed to be distinct species are now considered mere varieties, and others referred to new orders, or the orders themselves changed. Oxalis, for instance, is no longer the type of a natural order, but is thrown in with *Geraniaceæ;* and other arrangements have been made, which the more recent developments of science have rendered necessary.

Many names have been changed in accordance with the rule of science, that the oldest described shall have the preference. This Dr. Gray does in a way to satisfy his readers as well as himself by adding the year in which the name was given.

Over two hundred new plants discovered during the past four years, in the district, are described. Most of these are, of course, not new to science, but are old species, not before found here.

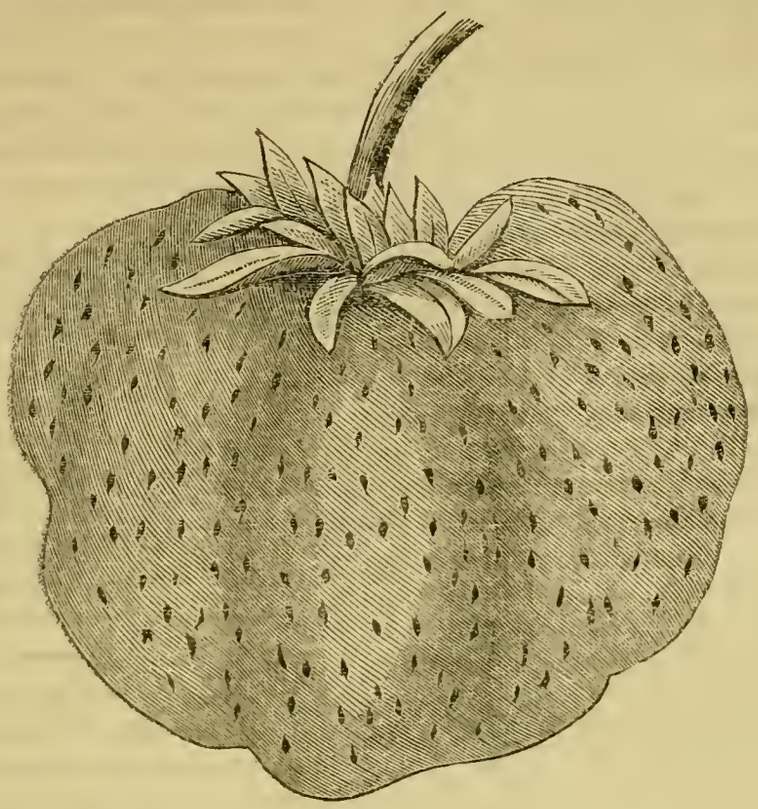
A large number of these discoveries are due to the researches of W. M. Canby and other botanists around Philadelphia, for all of which Dr. Gray renders due credit.

This edition, like the former, will speedily pass from the publishers' shelves to the libraries of nurserymen and horticulturist generally, for it is a book they cannot possibly do without.

New and Rare Fruits.

NEW FOREIGN STRAWBERRY—DR. NICAISE.—By our foreign files we see that this variety is attracting a very large share of the public attention in France. Figures of this variety grown in the United States, though evidently the same fruit, yet indicate so marked a difference in some respects that we have thought it would serve a good purpose with those who love to study the influence of

climate on varieties, we give a cut and description of this one from a direct French source :



The account says this fruit was raised by Dr. Nicaise, of Chalons-sur-Marne, from seed in July, 1861, ripening its first fruit in June, 1863. It is the "largest that has been known until this day," does not fruit all at once, but has a less sensible "diminution of the volume of fruit from first to last" than a great number of others. Leaves "abundant and vigorous," yet "permitting all the fruit to receive the rays of the sun." Color bright, red, flesh white and juicy, very sweet and highly perfumed. In the account before us, Jos. Riffaud, gardener to Dr. Nicaise, announces that he is selling the plants, by subscription, at 3 francs each.

Lorain Grape. — Mr. Barney, of Sandusky, exhibited several of the new seedlings of Mr. Hopkins, among them the *Lorain* a very fine flavored white grape, which received the premium for best seedling at the fair of the Grape Growers' Association, at Sandusky, two years ago. This variety has not yet been fully tested as to growth and healthiness of vine, productiveness, etc., the parent vine having been injured. Mr. Barney has this and several other good seedlings on trial. They will be heard from in due time.— *O. Farmer.*

Seedling Grape— *W. Brown Smith, Syracuse, N. Y.*— "We send you, by mail, a box containing a cluster of a seedling grape we have. It is a seedling of the Delaware and Diana, ripens as early as the Delaware, is perfectly hardy and a tolerable good grower. The fruit keeps well till spring. As for quality we wish your judgment upon that."

[We could not trace any of the Delaware in the sample sent. It has a very thick skin which should make it a good keeper. The quality is equal to Diana, and its earliness should be in its favor.]

Lady Crab Apple—*T. T. S., Dansville, N. Y.* —"I send, by mail, some 'Lady Crab' Apples. In growth of tree they are rather dwarfish, foliage dark green, glossy, and the tree keeps its foliage and color longer than the other crabs. The fruit is borne in clusters, and both tree and fruit rather ornamental. The tree has little or none of the appearance of the common crab.

"By the way, Mr. Editor, why not give your readers a full descriptive list of all the known kinds of crabs."

[This crab is of medium size (1¼ inch broad by 1 inch deep); yellowish-green on one side and deep crimson-red on the other. The only uses made of the Siberian Crab are for cider and for jelly; descriptions of them, therefore, should be with reference to their fitness for the purposes. Seedlings are now so generally planted, and varieties, therefore, so numerous that without special reference to their uses it is not desirable to name or describe

any one more than another. The cider, however, from the Siberian Crab is so very highly esteemed and found so profitable, that it is well worth while for cider makers to study the merits of the best kinds for the purpose, and then have them named and described.]

Apple from Dansville, N. Y.,—*T. T. S.*—"I send, by this mail, a couple of little apples. By *biting* into them you will find them peculiarly *red*, when *cut* they are not so red. They were handed to me by a neighbor as a seedling. If they are I should be pleased to know it. If merely some old kind pay no attention to them. I know so little about apples that they may be a common one among so many."

[We do not know it. Smaller than an average Lady Apple, and colored like a cranberry all through.]

Newman Plum—*Ed. J. Evans & Co., York, Penna.*—"We send, herewith, specimens of the "Newman" Plum, received from Kentucky, and represented as a vigorous grower, a regular bearer and "curculio-proof." They are rather the worse for their long journey, but will give you the size and flavor."

[Closely resembling the "Miser" Plum of Philadelphia, and, like it, belonging to a class which does not rot so easily after a curculio puncture as some others.]

New and Rare Plants.

In the recent issues of the *Botanical Magazine* occur figures and descriptions of the following:—

Oncidium serratum.—A remarkable species, with fantastic flowers, which have somewhat the appearance of O. crispum, borne on twining scapes, which in strong plants attain a length of nine or ten feet. It is a native of Peru, and must be regarded as a moderately cool orchid.

Synadenium Grantii.—A curious euphorbiaceous shrub brought home by Captain Grant from Central Africa. It is of robust growth with thick leaves, and the inflorescence is variously colored, green, rose, red and brown.

Peperomia arifolia vargyreia.—A beautiful variegated-leaved stove plant, now pretty well known amongst cultivators.

Saccolabium giganteum.—This magnificent orchid has been established in this country through the energy of Messrs. Veitch, who have obtained fine plants from Rangoon. It is stately and brilliant subject, more agreeably perfumed than S. violaceum, and the flowers last full three months in perfection.

Cordyline Australis.—The true C. australis is the commonest of the four or six species that inhabit the New Zealand group. The one formerly figured under this name in the *Botanical Magazine* is not identical with Forster's species; the present one probably is so.

Tinnea Æthiopica.—A beautiful labiate plant from central Africa, which flowered freely in Mr. B. S. William's Nursery, Holloway, last winter. It is elegant in habit, with bright green ovate leaves; the flowers copiously produced in the axils or in terminal spikes; corolla dark maroon purple, showing a curious and beautiful contrast to the green of the leaves. The flowers emit a delicious violet odor.

Dictyopsis Thunbergii.—A beautiful climbing plant of slender habit, with bright green leaves, and clusters of small greenish yellow flowers.

In recent issues of *L'Illustration Horticole* occur figures and descriptions of the following:—

Lilium hæmatochroum.—This is believed to be a hybrid. It is of Japanese origin, and is in every sense a noble plant. The flowers are of great size, the color deep chocolate shading to black, with bright lines of cinnamon color.

Larix Kæmpferi.—A not very good figure of this beautiful larch, but amends is made by an able series of analytical figures by Mr. Fitch.

Gastronema sanguinea.—A superb ally of the Hippeastrums; the flowers elegantly formed, color vermilion, throat yellow.

Maranta rosea-picta.—An exceedingly beautiful Maranta; the leaves dark green, edged with a row of zigzag marks of a pale pink color; the midrib bright carmine.

Euonymus radicans variegatus.—This pretty dwarf and compact growing plant has stood the past four winters with us without sustaining the least injury, although in the protracted storm of last January the minimum temperature was one night as low as 11° Fahr., and on several occasions under 15°. The constancy and beauty of its silvery white variegation, which is occasionally tinged with pink, makes it highly suitable for ribbon lines and edgings; and the free rooting property from which it derives its name renders it of the easiest propagation, as its branches even put forth an abundance of roots above ground, where the plants are grown in a close, warm, moist atmosphere. Our

four-year-out plant is not yet more than nine inches high, although house grown specimens of the same age are about twice that height; and for foliage effect it stands favorable comparison with the silver-edged geraniums, hence it will be found especially useful for amateurs and others who may have no means for wintering these universal favorites. We observe that the successors of the late Dr. Von Siebold are sending out from their celebrated Leyden nursery the original or green form of this plant which is expected to be still more hardy, and if of the same compact habit of growth it will also be an excellent plant for edgings, &c.

Aralia Sieboldii has stood out the three last winters alongside of the lays, and although its leaves or rather leaf-stems, were bent down and slightly injured by the snow and frost of last January, the plant is now putting forth a full complement of new shoots and enlarged foliage. Mr. Fortune says, that in northern Japan this species is a handsome evergreen bushy shrub, from twelve to fifteen feet in height; and its fine glossy foliage, which, when viewed at a short distance, may be compared in size and appearance to that of the horse-chestnut, will form quite a novel feature among that of other hardy evergreens.

Griselinia littoralis.—This beautiful, glossy, broad-leaved evergreen, which sometimes grows in New Zealand to the height of sixty feet, was not in the least affected by the 11° of minimum temperature last January, which cut down the common *Laurustinus* and injured the shoots of the common bay laurel, as well as those of the sweet bay, that were growing in its vicinity, so that it may be considered one of the showiest of hardy evergreens.— R. M. S. in *The Farmer*.

[*Griselinia littoralis* always suffers severely near London in hard winters, and has been frequently destroyed at Stoke Newington, notably so in the winter of 1860-61. In the nursery of Mr. Drummond, Bath, it is not hurt in winter, and it flowers freely, and bears abundance of berries but no doubt they will prove of great value for our Southern States.—Ed. *G. M.*]

Dombeya Mastersii.—*Bot. Mag.*, t. 5639. Sterculiaceæ. This is the plant described with some doubt as D. angulata, at p. 14. It is a fine, cool-stove shrub, with cordate-ovate velvety leaves, and axillary peduncles, bearing simple or sub-compound corymbs of perfumed white flowers. Native of tropical Africa. Flowered at Kew.

Domestic Intelligence.

Pears in New Jersey.—A recent visit, in company with Dr. Trimble, to the grounds of Joseph Pierson, Newark, N. J., afforded an opportunity of witnessing some very successful results, more particularly in pear culture. The grounds devoted to this purpose embrace several acres, and a large number of sorts have been submitted to thorough trial. After some thirty years experience, the proprietor finds, in accordance with results nearly everywhere, no sort so uniformly reliable and certain as the Bartlett. Next to this he places the Duchess de Angouleme, Beurre Clairgeau, Louise Bonne of Jersey, Beurre Diel. Many of his trees were dwarfs, which had been worked over, which he supposes have thrown out pear roots. He has trimmed them up as standards, finding the lower specimens of fruit not so good as those higher above the ground. The Clairgeau is very successful with him, and he pointed out a number of trees which had been regrafted only three years ago, that were now loaded with handsome specimens. It is needless to add that he gives his grounds excellent cultivation.—*Country Gentleman*.

Notes of Private and Public Establishments in and around Baltimore.—The first and oldest private place, is "Hampton," once belonging to Gen. Charles Ridgeley, but now inherited by his grandson of the same name. This is a very old establishment, and laid off in the old style, with sloping banks to a considerable extent. The garden and grounds have a very fine effect, when in order, but require many hands, and much more labor, than one of modern style. Here are some fine specimens of different ornamental and evergreen trees around the mansion; also in the pleasure grounds, which have been added a few years back, here is a fine orangery and some of the finest specimen plants of the kinds to be found, yielding an abundance of fruits; also, two vineries, producing fine specimens of grapes, and two greenhouses well stocked with plants, including a miscellaneous collection. A considerable quantity of early vegetables are raised in frames for home consumption. "Hampton" lays about eight miles north of the city and one mile from Towsontown.

"Mondowin," belonging to Mrs. Geo. W. Brown, lies two miles north of the city, on the Hookstown road. This is a well regulated place, under the management of Mr. Jacob Stedtmeyer, the gardener. The grounds are neatly laid out with beau-

tiful specimen evergreens of the older varieties. Many of them, however, are spoiled of their appearance by having to be cut on one side, the result of injudicious planting, which, I am sorry to say, is too much the case, not only here, but in most places by crowding plants together—not studying the nature of the trees, and the extent it requires when grown to make it a fine specimen. Here are three fine vineries, producing the finest fruit, and abundant crops—chiefly Black Hamburg, and other excellent varieties, worthy of cultivation. Much praise is due the gardener for his success with his vines, for few larger or better crops ever were obtained in this country. Besides, here are two greenhouses nicely stocked with plants, well taken care of, and which make a fine display in the winter months—yielding an abundance of flowers. The kitchen garden with framing, forms a compact and well kept place, well worth seeing at any season of the year.

"Clifton," is the country seat of Mr. John Hopkins, is an extensive place, and has pleasure grounds on a large scale. Here are found fine specimen trees of evergreens especially, such as Pinus excelsa, Auricaria Cunninghamii, Thuya aurea, Cryptomeria, (25 feet high) with many more worthy of notice; but, for want of proper planting, many specimens are spoiled because they have not room to show their beauty. The grounds are kept in as good order as can be expected, under themanagement of Mr. Wm. Fowler, the gardener, considering the few hands he has to assist him. Here is a large kitchen garden, the produce of which is taken to market; and a large quantity of fruit, especially pears and figs, which are disposed of in a similar way In addition to this garden are five houses for grapes, running over 400 feet. The vines are in the best condition, producing every year a full crop, and bunches of the largest size, yielding a fine income to the owner. There are also two greenhouses with a fine collection of plants—making a nice display at all times. Some fine old specimen plants are in this lot,—especially Acacia cultriformis, the best of its class for winter flowering. All the houses are heated by hot water, and taken altogether, it is the largest private place around the city, situate about two miles north thereof, on the Harford road.—*Rural Gentleman.*

Orchard of L. W. Lyon, Alton Ill.—The committee on orchards respectfully report that they find upon the one hundred and thirty acre farm of Mr. Lyon, forty acres in fruit, comprising two thousand apple trees, of ages ranging from twenty down to four years—reckoning from the time of planting—and one hundred pear trees. The varieties of apples are Newtown Pippin, Winesap, and Janet of winter sorts. There are also old trees of the Nickajack, which proves here a strong grower and tolerably productive of fair fruit, resembling externally the Pryor's Red, but inferior in quality. Of summer varieties, Early Harvest, Carolina Red June, Primate and Early Strawberry are preferred. August Pippin (a local name) proves very satisfactory, and Fall Wine has proved very productive. The trees are planted forty by forty and then a tree is planted in the centre of the square, or fifty-four trees to the acre. The trees were mostly planted in holes dug with the spade, but Mr. Lyon has latterly practiced the more satisfactory method of plowing ridges a first and second times, and planting upon the corner of the elevation of the loose soil. Mr. Lyon prefers two-year old grafts, and considers one-year old better than three. The orchard is plowed in June and in the fall as late as it is possible to turn in the vegetation before it is killed by frost.

Mr. Lyon has a small nursery and grows most of his orchard trees himself.

His experience with pears thus far is quite satisfactory; as he has thus far escaped the ravages of the blight, although he has trees seventeen years of age and under.

The younger trees of Mr. Lyon look very thrifty and shapely, and upon the whole your committee would rather not undertake any adverse criticism. —*Proceedings of the Alton (Ill.) Society in Rural World.*

The Fameuse, Willow Twig and Wagener Apples.—There must be something wrong in Mr. Wikoff's experience with varieties of the apple. Having seen most of all the leading varieties tested by the side of each other, and in soils and situations where every variety that was not very hardy, was injured or killed, I will send you an account of how they have done in this section.

Fameuse has but five equals in hardiness, is an early and annual bearer; our trees bore a good crop last year, and are overloaded this. Could I have but one variety, I would take this. Willow, while young, rather tender, when large, second class as to hardiness; sufficiently hardy for favorable locations; a good bearer, long keeper. Wagener, second as to hardiness, the deficiency being in the trunk should be worked in the top of some variety whose trunk never fails; an early, annual, and one of our very best bearers of good fruit that is in use a long season.

We lost some trees on their own stems, the winter before last, others came through all right, except a little defect in their trunks; bore a good crop last year, are bearing a very heavy one this. The Red Astrachan, which has been rather a spare bearer, is bearing very full this year.—E. R. Heisz, in *Iowa Homestead.*

Strawberries at Vineland, New Jersey.—The *Weekly* estimates the population of Vineland, as 10,000. The Strawberries consumed by them at 40,000 quarts, and the quantity sent to Philadelphia, New York and Boston markets at 400,000 quarts. The prices paid to the producer by the commission agent ranged from 8 to 27 cents per quart, and the average price for the whole season was 13 cents per quart.

Fruit Culture about Norfolk, Va.—The *Norfolk Journal*, speaking of the profits realized from fruits in that section, says:

Mrs. Ware has realized from thirty acres ten thousand dollars on pears. Wm. J. Wright, of Norfolk county, has realized three thousand dollars from eighteen acres of apples. Mr. Robinson has received a net profit of eleven hundred and seventy-six dollars on strawberries, from two acres and a quarter. Mr. Joseph Hall, of Princess Anne, has sold four hundred and four dollars worth of apples, from forty acres of young trees, which have been set only three years. A great number of similar examples might be cited, if pains were taken to obtain them from first sources. They prove that the fruit business of the country around Norfolk is fast coming to the aid of the vegetable trade, to swell the profits of our truck farming.

Best Market Fruits for Missouri.—The *Rural World* recommends: The best red raspberry now in cultivation, for either family use or market culture, is the Philadelphia. The best black raspberry is the Doolittle. The best variety of the strawberry for market culture is Wilson's Albany. The New Rochelle (Lawton) Blackberry, so far as our experience extends, stands at the head of the list, for market culture. The old Red Dutch Currant is hardier, stronger and more productive and profitable than any of its later rivals. The same may be said of the Houghton Seedling Gooseberry.

Agricultural Capacity of the South.—The Hon. John Robertson, has prepared a Report on Agricultural, Mineral and Manufacturing resources of the State of Louisiana, which has been published, and is attracting much attention from those who have the industrial prosperity of the south at heart. We have not had the privilege of reading the whole, but several columns are given in the *Iron Age*, of New York, in its issue of August 29th.

A Valuable Milk Farm.—Mr. Ross Winans, of Baltimore, now seventy years of age, purchased, in 1861, a farm of about seven hundred acres, along the banks of the Patapsco river, and about six miles from Baltimore. His land cost him $50,000; he added buildings at a cost of $20 000; his fence cost him $3000, and he manured it at an outlay of $67,000, making the total cost of the estate $140 000. During the year ending on the first of May last, his sales of milk amounted to $37 630 71; of cows and calves, in the same period, he sold $11 986 worth, and had some fifteen or twenty more animals on hand than at the commencement of the year. He, however, purchased $9 098 worth of cows and heifers during the year. At the close of the year he had on hand two hundred and twenty tons of hay, and his total product of hay for the year was estimated at eighteen hundred tons—a great average per acre. His system of manuring tends to build up and nourish his land, and not to impoverish it.

Apples for Ohio.—Mr. C. Springer, of Muskingum County, has recently written a paper on this subject for the Zanesville *Times*, on the best varieties of apples for Ohio, he says:

As to the fruit proper for cultivation, that depends upon the soil and climate. Mr. Downing, on the Husdon, N. Y., formerly a great fruit amateur, was written to by a gentleman of Illniois, inquiring about the merit of fruits. He replied that he considered the Rhode Island Greening the best apple for cultivation, of his acquaintance. However this fruit may have prospered on the Hudson it does little good here, on any soil. The Never Fail, or Rawles' Janet, is considered the apple of Kentucky. Here, and further north, when the trees get age they are worthless. Supposing it might do better further south, I sent some of this variety, with an assortment, many years ago, to accomodate a friend, to the neighborhood of Montgomery, Alabama I learn it does little good there.

Not only climate but soils affect the welfare of fruits. The Newtown Pippin, for instance, does little good on sandy or alluvial soil, but does best on clay. On the contrary, the Putnam, or Roxbury Russet, is comparatively worthless on clay, but does well in sandy or alluvial. But we cannot do more than call attention to the subject and must leave it

to your experience and observation to determine its importance.

The *Westfield Seek-no-further*, taking all its qualities, is the best apple for cultivation, on any soil, that I know among the old varieties. It has a low spreading top; the limbs come out of a nerve and never split. The fruit spurs are distributed all over the large branches, and it bears every other year profusely. The apple is good size, ready for use in the fall, and remains good all winter. It is my favorite apple for eating. For its many good qualities I should not complain if one third of my orchard was of this variety. It seems adapted to any soil, but my neighbor thinks they are not quite so good on his alluvial creek bottom as on my clay.

Rambo is a healthy tree; good bearer, and most people want the fruit. It seems to do well anywhere. There is but one objection I have to the tree; that is its tendency to run up beyond your reach. Last year I had one Rambo forty years old. It had about five or six barrels of larger fair fruit, as much so as on trees not half so old, yet with a ladder I picked my Seek-no-furthers of the same age; I could not reach a single basket full from the Rambo. The fruit went to loss because we had no ladder that would reach it.

Newtown Pippin—John Matthews, formerly of Moxahala, who had the greatest of apples of his day, considered this the most worthy of cultivation of any he had experimented with. It has not done near so well of late, being inclined, some seasons to scab. But I never had a better crop of this favorite than last year, it was large and fair on trees from fifteen to forty years old. But on strong soil it is inclined to run up. It is in its perfection in the spring.

Gate, or Belmont, as the book men improperly call it, is one of the handsomest apples cultivated. It bears well, and is perhaps better adapted to the taste of the amateur than any other apple; and, if it were not for the defective habits of the tree would stand at the very head of the list for cultivation. The trees split apart and perish in various ways as they are coming into maturity. My neighbor planted ten Gate near twenty years ago, they bore about two or three good crops and then went apart, so that he has not had a Gate apple in his orchard for a number of years. I planted fifteen about the same time; two passable trees are all that are left. I have seen on a farm of Joshua Gorsuch of this County, a Gate tree that had been bearing for thirty years. It was grafted in the top, on limbs of a natural stock five or six years old. This proved quite a successful experiment against the splitting habits of the tree, and shows that the friends of this particular kind of fruit have a remedy for its defects.

SELECTION FOR AN ORCHARD.

We will give the proportions we would recommend in a selection of one hundred trees from such varieties as we have tested on our soil: Westfield Seek-no-further, 15; Newtown Pippin, and Willow Twig 10; Wine Sap 10; Federal 5; Rambo 5; Bently Sweet 5; Yellow Bellflower 5; American Golden Russet 5; White Bellflower 4; Roman Stem 2; Kaighn's Spitzenberg 2; Blue Pearmain 2; Cooper 2; Summer Sweet 2; White Jennetting 2; Early Harvest 2; Early Pennock 2; Black Apple 2; Northern Spy 2; Putman Russet 2; Gate 2; Winter Pearmain 2.

It may be proper to give a list of such fruits as we have found on trial to be comparatively worthless for cultivation, so as to put the public on their guard; viz: Fall Pippin, Tulpehocken, Grindstone, Rhode Island Greening, Romanite, Rawle's Jannet, Red Cathead, Dutch Mignonne, Bough Sweet, Jersey Red Streak, Cornish, Gilliflower, French Pippin, Esopus Spitzenberg and others of which we have not the names. Some of these are worthless bearing qualities, as the Fall Pippin and Bough; others, because the tree perishes, as the Tulpehocken; and others, because of their inferior quality, as the Grindstone; this apple has long been celebrated for its keeping properties, but there has of late years been so many superior keepers introduced, that it should be permitted to retire from the list.

Foreign Intelligence.

The Royal Horticultural Society of London has been "starring" it in the Provinces. The *Gardeners' Chronicle* gives an account of a very successful exhibition at Bury St. Edmunds:

"We mentioned last week that the locality chosen for the exhibition was the Vine Fields, as they are called, a spot which, we may presume, the monks of olden time knew how to turn to good account. Here Mr. Eyles succeeded in arranging a most effective exhibition—probably the best provincial show that has yet been seen.

There was, in the first place, Unite's great circular tent, 90 feet in diameter, forming the reception room, so to speak, from whence the visitors were conducted through the suite of tents beyond, extending to more than 200 yards in length. In this circular tent were a central stage, a broad pathway,

and an exterior belt of plants set on the ground. Here were mostly arranged the collections of large stove and foliage plants, the hothouse Ferns, Palms, Arads, and such like subjects, contributed not only from the gardens of the vicinity, but many of the most choice and remarkable among them had been brought from distant Manchester and London. Leading out of this was a tent, of some 300 feet in length, devoted in great measure to cut flowers, fruits, bouquets, and special prize subjects requiring table space for their display.

Parallel to this ran another tent, nearly 200 feet long, which was almost entirely filled with Pelargoniums, separated by a central line of Fuchsias. These were most effectively displayed *on the ground*—a mode of setting up all the larger kinds of exhibition plants which has many points of recommendation, inasmuch as the surface of the plant is seen instead of the side or the lower portion, which latter is brought too much into the line of vision when massive plants are set up on elevated stages.

Another tent of considerable size was devoted to implements: and others, again, to a variety of subjects, forming the smaller classes of the schedule,—including the cottagers' produce, of which there was also a good display.

Of all this vast amount of horticultural productions, there was scarcely anything to be observed below the average in point of merit, and very many even of the local productions—which, from want of competitive stimulus, we scarcely expect to see equalling those brought to the London shows—were far above the average, rising even to the highest degree of quality, and rivalling the best of their class brought to a metropolitan gathering.

Fuchsias and Pelargoniums were amongst the local productions which evinced this very high degree of excellence; while of novel features, also well developed by local exhibitors, may be mentioned the fine display of bedding plants, some groups of which proved most attractive objects.

Peach Tree producing both Peach and Nectarine Fruits.—We have growing in the gardens here an old Barrington Peach tree, which has produced, in three different instances, both Peaches and Nectarines on the same wood; and, in one case, a Peach, a Nectarine, and a fruit half Nectarine and half Peach, one side of it being rough and woolly, and the other smooth,—all on the same shoot.

Perhaps you or some of your readers will kindly inform me if this is not an uncommon occurrence, as I have never seen anything of the sort before during an experience of upwards of fifty years, as well as several friends, to whom I have shown it.

The shoot mentioned, with the three fruits on, will probably be exhibited, by a friend of mine, at the next meeting of the Royal Horticultural Society. —David Spary, gardener to G. R. Marten, Esq., *Marshall's Wick, near St. Albans.*

[It is not a common ocurrence, but instances where it has happened are not unfrequent.]

New Mode of Ventilating Greenhouses.—Messrs. Harrison & Bettridge, of Chelmsford, showed another contrivance for ventilation, which they call a ventilating set-ope. This appears to possess considerable merit, and was accordingly Certificated. It was shown as applied to the front sashes of a greenhouse, but was said to be equally applicable to roof ventilation. It consists of a flat bar of iron, the length of the sash, fixed to one of the central bars, to which it is also bolted at the top, and at the upper end of this bar is a vertical projecting segment or arm, furnished with cogs, which work into cogged wheels, fixed to a bar, which runs the whole length of the house, and is moved with much facility by a handle at the end. By turning the handle the sash is moved outwards at the bottom. The only apparent objection to this contrivance, which would, no doubt, hold the sash firmly in any position, is that its appearance would perhaps be rather heavy inside the house.—*Gard. Chronicle.*

Coronilla glauca variegata, grown pyramid fashion, in pots, and plunged in any part that requires to be lighted up, has a very fine effect. It is one of the easiest of all plants to grow, and makes also a very neat edging for beds. I have several times used it as such in a small way.—*Cottage Gardener.*

Roses at the Royal Botanic Society's Show, June 19, 1867.—Messrs. Mitchell, Cranston, Paul & Son, and Fraser were the exhibitors; and the best box in the exhibition was that shown by Mr. Cranston. These consisted of Paul'ne Lansezeur, Jean Goujon, Souvenir d'Elise, Madame Willermoz, Marguerite de St. Amand, Abbe Berleze, Madame Furtado, Le Rhone, Madame Julie Daran, Niphetos, Madame Boll, Souvenir d'un

Ami, Dr. Andry, a truly grand rose; General Jacqueminot, now superseded by some of his progeny; Jules Margottin, Victor Verdier, Senateur Vaisse, Madame Knorr, Md'lle Emain, Gloire de Dijon, and Marechal Vaillant. Messrs. Paul & Son had some fine boxes, containing in especially good condition Lord Herbert, Duchesse de Caylus, Joseph Fiala, Alfred Colomb, and Triomphe de Rennes. Mr. Mitchell had some very fine boxes of twenty-five Roses, three trusses of each. They were La Tour de Crouy, too full, and rejected by me, long ago, for that reason, but here very fine; Alfred Colomb, Maurice Bernardin, Celine Gonod, John Hopper, Pierre Notting, excellent; Charles Lefebvre, still unsurpassed; Le Rhone, Madame Boll, Senateur Vaisse Anna de Diesbach, Madame Furtado, Gloire de Ducher, Marechal Suchet, loose; Madame Domage, ditto; Louis Van Houtte, rough; Madame Clemence Joigneaux; Marechal Niel, fine (it is, by-the-by, a mistake to call this hardy); Charles Margottin, rough; Louise Peyronny; Adolphe Rothschild; Xavier Olibo, crooked on opening; Caroline de Sansal and Madame Victor Verdier. Messrs. Paul and Son were second with fine flowers, containing, amongst others, Princesse Marie de Cambridge, Madame Fillion, Beauty of Waltham, Alba Rosea, Olivier Delhomme, Francois Lacharme, Achille Gonod, Madame Victor Verdier, Gloire de Dijon, Xavier Olibo, Comtesse de Chabrillant, Madame Charles Wood, Marguerite de St. Amand, very fine; Pierre Notting; and Alfred Colomb, a very fine Rose. Before leaving the Queen of Flowers, I must notice a truly regal addition, in every sense of the word, to our already numerous favorites, but in a class in which we are very deficient. I allude to Miss Ingram, a Rose raised at the Royal Gardens, Frogmore, by Mr. Ingram, the veteran and accomplished gardener at that truly regal establishment. It is a lovely white Rose, with a blush centre, somewhat of the shape of the old Cabbage, perfectly hardy, having withstood the frost of January, which destroyed nearly all the light Roses in that locality. I venture to predict for it a career, as an English Rose, equal to John Hopper. —*Journal of Horticulture, English.*

Australian Spinach.—At the commencement of last year, Mr. Ramel, who introduced into the French colony of Algiers the Eucalyptus globulus, received from Australia a new vegetable. His friend, Dr. Mueller, of Melbourne, had it sent to him as a substitute for Spinach; it is superior in every respect to that vegetable, easier of cultivation, and of an enormous and rapid growth, less subject to run to seed, and also of better flavor. He called the plant New Queensland Spinach. The New Australian Spinach is, however, a better name. It belongs to a group in which is comprised our common Spinach; it answers botanically to the Chenopodium auricomum of Lindley, who described it in a few words in Mitchell's Journal on Tropical Australia. It grows abundantly in the East part, following the course of the River Narrau, and is again found in Queensland The Chenopodium auricomum is an annual, with a long stalk, rising to a metre. In its general appearance it resembles Chenopodium hybridum, that troublesome weed which overruns our fields, excepting in certain points, especially in the inflorescence, which differs. The stalk is erect, robust, angular, fluted, streaked with a violet kind of red. As regards the eatable qualities of the plant, we have recently gathered an abundant harvest of leaves from two or three plants growing in our garden. These leaves were put into boiling water to bleach them, and they were then cooked as an ordinary dish of Spinach, with this difference in favor of the new plant, that there was no occasion to take away the threads which are so disagreeable in Chicory, Sorrel and ordinary Spinach. We partook of this dish with relish; the flavor, analogous to Spinach, had something in it more refined, less grassy in taste. The cultivation is easy; sow the seed in April, in a well-manured bed, for the plant is greedy; water it. The leaves may be gathered from the time the plant attains 50 centimetres in height. They grow up again quickly. In less than eight days afterwards another gathering may take place, and so on to the end of the year.—*Journal de la Ferme et des Maisons de Campagne.*

Horticultural Notices.

PENNA. HORTICULTURAL SOCIETY.

The Annual Exhibition was held on the 24th, 25th and 26th of September, and was, in many respects, one of the most successful held for many years. Particular interest attached to it, on account of its being the first annual one held in the New Hall, and the result was looked forward to as a test of the success of the idea. The Society is not blessed with many active, working members, though with a very large list of subscribers and well wishers. The only wonder is that with so few persons to interest themselves personally, so good an exhibition could be gotten up.

On the present occasion, the whole success was due, chiefly, to the indefatigable chairman of the Committee of Arrangements Mr. J. E. Mitchell, Messrs. James Ritchie, Robert Scott, H. B. Blanchard, W. L. Schaffer, Robert Kilvington, who alone acted out of thirty-eight committee-men, Mr. Newberry Smith a volunteer, a committee of ladies under Miss Percival, and the excellent hard-working Secretary, A. W. Harrison; to these, the Chairman of the Exhibition wishes to return his thanks for their active support. The Philadelphia gardeners and nurserymen behaved well. Some of them had magnificent collections.

Of Nurserymen, particularly, R. Buist, P. Mackenzie, H. A. Dreer, L. C. Bauman, Mahlon Moon, (Morrisville,) David Fergusson, W. Parry, (Cinnaminson,) F. F. Merceron, (Catawissa,) W. Southwood, Franklin Davis & Co., (Richmond, Va.) E. Satterthwaite, Pennock & Bro., Geo. Williams, John Dick, D. R. King, R. Raabe, B. L. Ryder, (Franklin, Pa.,) D. S. Heffron, (Utica, N. Y.) had articles on exhibition, and D. Landreth & Son, and Maupay & Hacker represented the seedsmen. In addition to these, there were *one hundred and fifty* horticulturists who made entries, hailing from South Carolina and Virginia to New York State.

The great effort of the Pennsylvania Society is to be cosmopolitan rather than local,—something as the London *Gardeners' Chronicle*, referring to this Society, recently expressed it—the analogue of the English Royal Horticultural Society—the beginning under the new auspices is a very fair one.

Our limits will not permit us to give a full report of the many meritorious exhibitors, and articles which swallowed up some *six hundred dollars* in premiums. We can only give such items as we thing may interest our readers in all parts of the world.

The best 12 Plants, awarded to Mr. W. Joyce, gardener to Mrs. M. W. Baldwin, were equal to anything ever seen before the Society. As an index of the kind of plants popular for specimen growing, we give the full list. Allamanda cathartica, Croton pictum, Euphorbia splendens, Stygmaphyllon ciliatum, Plumbago capensis, Jasminum grandiflorum, Dipladenia crassinoda, Cycas revoluta, Hibiscus sinensis, Beaumontia, Baumgartneria and Cissus discolor.

Best collection of 12 to a nurseryman or amateur, was Robert Buist's Medinella Sieboldii, M. magnifica, Cyanophyllum magnificum, Campylobotrys refulgens, Maranta Porteana, M. zebrina and Nepenthes distillatoria, Pandamus utilis, Allocasia metallica, Cissus Amazonica, and some Caladiums.

Collections of 6 plants to W. Bevis, gardener to Dr. Camac, was the highest premium awarded, but the list of kinds was not handed in.

The best 12 Ornamental Foliage plants was awarded to W. Joyce, gardener to Mrs. Baldwin. Best specimen ornamental foliage plant to Joseph Bevis, gardener to Dr. Camac. Wm. Joyce had the best collection of Ornamental Foliage plants,—the best variegated foliage specimen plant was awarded to Jos. Bevis.

The collection to which the best 12 Ferns was awarded handed in no list, we therefore give the 2d best by Mr. W. Joyce, gardener to M. W. Baldwin: Adiantum formosum, A. assimile, A. trapeziforme, Davallia Canariensis, Gymnogramma dialbata, G. chrysophylla, G. tartarica, G. sulphurea, G. argyrea, Pteris tricolor, Cretica alba lineata, Argyrea.

Mark Reeves, gardener to General Robert Patterson, had the best 12 Caladiums: Jos. Beavis, best 6 Marantas; R. Buist, best 6 Dracænas; Joseph Beavis, best 6 Lycopodiums; Gebhart Huster, gardener to J. B. Heyl, best 6 Fuchsias.

In Cut Flowers, Gebhard Schmidt had the highest premium for Dahlias. They were all numbered seedlings. Mr. Dreer's second premium were named, but no list handed to the Secretary. H. A. Dreer had the 1st premium collection of Cut Flowers, and Thomas Meehan for Zonale Geraniums. H. A. Dreer, best Gladiolus and best Verbenas.

A very large amount of Premiums for meritorious articles not provided for in the Schedule, were awarded; amongst others, to W. Young, gardener to Stephen Morris, for a beautiful collection of Orchidæa in bloom, which was a rare sight to the visitors.

Daniel Dunlap, gardener to Mr. Starr, exhibited a fine collection of Plants. Mahlon Moon's Evergreens, was probably equal in variety to any collection in the Union. Robert Buist's collection of New Plants had many admirers. They were Maranta Vanderbeckii, Bignonia argyrea, Ficus Cooperi, Dracœna Cooperi, Herodium spicatum, Bambusa variegata, Aucuba magnifica, Rhodea japonica, Dieffenbachia grandis, D. Baraquinii, Euryalatifolia variegata, Caladium porphyrophylla.

The Fruit department made a very good display. Of Foreign Grapes, the best six varieties was awarded to J. E. Mitchell, Esq., of Chestnut Hill. Best 3 bunches Black Hamburg to S. Greasly, gardener to D. S. Brown, Esq. The best 3 of any other dark (Victoria,) to the gardener to B. B. J. Leedom, Esq. Best Muscats, (Alexandria), to W. Fowler, gardener to John Hopkins, Esq., Baltimore. Best of any other white variety, (Gold-

en Hamburg,) B. J. Leedom. All these Grapes were remarkably well ripened, and generally of superior quality.

Native Grapes made a fair show for so bad a Grape season. Best collection of cut bunches, F. F. Mercer.n. These were Norton's Virginia, Paxton, Maxatawney, Taylor, Clinton, Rogers' No. 1, Creveling, Concord, Hartford Prolific, Delaware. We have not had space for the second or third premiums, but the collection of Mr. Kennedy, gardener to Richard Norris, who had the second premium in this class, was very fine. They were Delaware, Diana, Concord, Rebecca, Isabella, Catawba.

The largest collection of Grapes, 28 varieties, by T. T. Mather, had a special premium. The largest number often carries the premium for the "best collection," but Mr. Merceron's were so very fine, as compared with an equal number of the same kinds in Mr. Mather's, that they felt compelled to award the premium. Nevertheless Mr. Mather's lot afforded a good school of instruction to the visitors.

Of single varieties, the best Catawbas were by Isaac C. Price; best Delaware, F. F. Merceron; also for best Concord. T. T. Mather for best Diana; H. A. Dreer, best Isabella; F. F. Merceron, best Creveling.

The best of any variety, except those named in the Schedule, was gained by Mr. L. Chamberlain—Maxatawney. The best of any new variety by Hon. E. Satterthwaite—Iona.

Some very fine Cannon Hall Grapes from Gov. Alexander Cummings, too late for competition, has a well earned special premium, as also some of the same variety from C. McAllister.

Some very fine Lady Downes and Bowood Muscat came from F. F. Merceron. A plate of Palestine, grown in the open air by R. Curry, attracted attention by the novelty of large bunches and small berries. Christine (Telegraph) Grapes, by E. D. Heston, from the original vine, showed it to be a very good grape.

J. E. Tyson, of Baltimore, exhibited a seedling of promise, allied to Isabella. Also, one by Peter Raabe, called the Huies—a small berry, but with a sweet pulp.

The "Paxton" of Merceron, resembles Concord, but the specimens exhibited the Committee did not consider equal Concord. From H. W. Ravenal came three varieties of Muscadine, the common Scuppernong, the Flowers, and the Thomas, which the Committe noticed as making good wine in the Southern States.

The collection of Pears was not superior in quality. Hon. E. Satterthwaite had 163 kinds, and the first premium. W. Parry had 114. J. M. Price, the first premium—Seckel. E. Satterthwaite, best Duchess; I. C. Price, best Louise Bonne de Jersey and also the best Beurre d'Anjou. J. McLaughlin gardener to Mrs. Baxter, best Washington and best Lawrence; and E. Satterthwaite, best ornamental fruit basket.

Amongst the numerous special premiums we noticed very fine White Doyenne Pears by C. L. Warner. W. Patton had some enormous Duchess Pears, weighing over 1 lb. each.

Of Apples, no collection for many years equalled the 1st premium, for 163 kinds, to Franklin Davis & Co., Richmond, Virginia. In addition to the regular premium, the Committee recommended a special Diploma be awarded for them. B. L. Ryder of Vineland, had the second best collection—20 varieties. R. S. Bunting, with his Portérs, took the "best half bushel."

The best Peck of Peaches was awarded to Thos. M. Cullen. These were of "monstrous size," yellow, free flesh, and of good flavor, from a seedling tree in the yard of a Philadelphia mechanic. The Smocks of R. H. Cummings, of Delaware, had the 2nd premium.

The Quinces, this year, were extra fine. Mrs. W. O. Kline took the 1st premium.

Pine Apples, in pots, were equal to the best English grown specimens. Mr. Joyce's were a little the nearest towards ripening, and had the 1st premium. The next, by Mr. Wm. Young, were not far behind.

The Figs were extra fine. Mr. W. Fowler, of Baltimore, as last year, gaining the premium. There were many dishes of Catawissa Raspberries, J. F. Kauffman, of Roxborough, taking first premium.

The Vegetable display well sustained the reputation of the two Feltons', whose skill in this line excels most of the Philadelphia market gardeners. The amateurs were out in full force. 1st premium to Charles Harmer; 2nd to James McDonald, gardener to M. Baird, Esq.; 3rd to J. E. Mitchell; 4th (favorable mention) to Gebhard Huster, gardener to J. B. Heyl. Best collection of Potatoes to Anthony Felten. A very fine collection of Vegetables too late for competition came from Wm. Carville. Tomatoes there was considerable competition for the premium. It was awarded to J. Mc Donald for the "Baird."

One of the most interesting facts learned was that the New Hall keeps things in good order. The Fruit and Flowers, after 3 days' exhibition, came out nearly as fresh as they entered.

AMERICAN POMOLOGICAL SOCIETY.

In continuing our notice of the National Society, we now give the able address of Mr. A. Fendler. To our mind it is one of the most philosophical ever presented to any of our Horticultural societies, and calculated to aid materially in arriving at a satisfactory theory of some of our worst plant diseases ;

ADDRESS BY A. FENDLER, OF ST. LOUIS.

A microscope of good magnifying power reveals to us the fact that every part of the organized fabric or tissue of trees and plants consists of a multitude of separate cavities, Any slice of the root or other part of the plant, thus magnified, presents somewhat the shape of a honeycomb, and is, in fact, an aggregate of more or less elongated little bladders, or sacs called *cells.*

The whole potentiality of the plant exists in the individual cells of which it is made up. In them its products are elaborated, and all the vital operations carried on. The young and most vitally active cells are found between the wood and the bark, and in all parts of recent growth, such as buds, young shoots, and rootlets. In these *active* cells, the transformation of the crude sap into new vegetable tissue is performed.

Water is the vehicle by which the great bulk of the plant's food is conveyed; first through the root and subsequently through the active cells of the whole plant. This conveyance is either retarded or accelerated, according to the less or more vigorous perspiration of vapor through the surface-pores, and exhalation from the breathing-pores of the leaves. In the interesting experiments of Dr. Hales, a vine, with a surface of foliage equal to twelve square feet, exhaled or perspired at the rate of five or six ounces of water a day. This, of course, is during the period of active vegetation, and in dry weather.

The breathing-pores are situated, principally, on the lower side of the leaves, and so arranged as to afford free communication between the external air and the whole interior space of the leaf. They are a kind of safeguard against excessive evaporation in dry weather; they open only when they are moistened, either on the inside or outside, and contract when dry on *both* sides, so that if the plant contains an abundance of moisture, these breathing pores remain open and allow it to escape; but when the plant, in dry weather, suffers for want of moisture, the breathing pores close up. Yet they will also open, if moistened from the *outside alone*, no matter how dry the plant may be inside, and thus the superabundant humidity of the atmosphere may find its way far into the tissue of the plant by what meteorologist call "the force of vapor."

We all know the powerful pressure of heated steam, as daily exhibited in the piston-rod of steam engines. This is done by the repelling force of the heated particles of aqueous vapor. The more heated and crowded they are, the greater their repelling force will be.

But even vapor of a *low* temperature exerts a certain amount of pressure that can be made manifest and measured. It makes no differenc whether the vapor is heated artificially or by the sun ; it always presses in proportion to its density and temperature, even when free and unconfined as in the open atmosphere. It presses not only through the breathing pores of the leaves, but also through the common pores of the bark of tender shoots, and the pores of the skin of young fruit, and enters the interior of the plant,—provided the plant is comparatively *void of moisture*, and the atmosphere *saturated* with it, and of a *high temperature* at the same time.

In our climate of the Mississippi valley, and further East, this state of the atmosphere may often be noticed during the months of June and July, the aqueous vapor being supplied by the moisture bearing southeast and south-southeast winds. The lower strata of the atmosphere are then charged with a superabundance of humidity in the state of invisible vapor.

If, at this period of hot, sultry weather, showers of rain are scant and far between, not sufficient to keep the soil in its normal state of moisture, the roots of a plant may be languishing for want of water, at the same time that its over-ground part is immersed in a bath of warm vapor. This immersion, though stopping the evaporation from the leaves, does not matter so much, as long as the roots have a sufficiency of moisture. For this moisture, imbibed by the roots and carried up to the surface of the leaves, will, in the form of vapor or steam effectually hinder the outside steam from entering the tissue of the plant. But when there is no moisture in the ground, the outside steam encounters nothing to oppose its own force, and will have free access through the pores of leaves, berries and young shoots.

It may easily be imagined that this reversed course of nature is of no advantage to vegetation ; on the contrary, it cannot be but highly injurious. How would men and animals prosper if, instead of receiving their daily liquid and solid food through the mouth and stomach, they were treated unremittingly for days and nights to a bath of warm vapor, though that vapor contained a liberal admixture of some nourishing volatile ingredients? Far better for the system, both animal and vegetable, to re-

ceive its sustenance in the ordinary way, even in insufficient, starving quantities, than to have it forced through organs unfit for this office. For a vegetable needs, besides the carbonic acid its leaves take from the atmosphere, a vast quantity of dissolved mineral substances, which it necessarily must take up from the soil, and can do it by no other organ but the roots.

Hence, being exposed to the unnatural condition mentioned above, the active cells in the young fruit and leaves will do their work, but very incompletely. In consequence of this defective action the healthy transformation of their sap will run into putrid fermentation, and then the ever present spores of the fungus soon find out their natural element in which they can thrive and luxuriate. Then we are told the fungus, in the shape of mildew and rot, has attacked and diseased our *healthy* vines and berries. The fungus, no doubt, when once established, may accelerate the disease, but cannot be the cause of it, as long as the sap has not been vitiated by the disturbed functions of the plant.

Now, it is the task of the horticulturist and fruit-grower to prevent this forcing in of steam from the outside. And it can be done, as I have reason to believe, by keeping the inside of the plant—that is, its interior cells and vessels—filled with humidity, so as to counteract, by an equally strong opposite pressure from within, the deleterious pressure from without. And this we can do by planting the tree or vine in a locality where its roots may find a moderate but constant supply of aqueous vapor emitted from water stored up in some way or other between cracks, crevices, loose, pebbly soil, or fed by the *underground* exhalations from wells, cisterns, drains and water courses.

Some authors contend that the cause of the grape rot is to be found in our cold, *dry* night air, and lay great stress on the intense radiation of caloric through this dry air. What few facts I could gather this summer about the rot of the Catawba in St. Louis County, point to the period from the 2d to the 7th of July as the time at which the rot made its first appearance. According to my psychrometrical observations, the above period was one of extreme atmospheric humidity, especially during night, the temperature high, and the atmosphere in such a condition that very little, if any, radiation could go on. Moreover, I know of an instance where, of two Catawba grape vines, planted a short distance apart on the same premises, one rots the grapes very badly every year; while the other, with fine crops for fourteen years in succession, has never exhibited the least sign of rot. In 1864 it had no crop, because the buds were killed by 22 degrees below zero.

Both these vines are influenced by the same atmospheric conditions, and exposed to the same condition of caloric. Hence, radiation cannot be the cause of rot. There is, however, a cistern near the healthy one, from which its rootlets can draw an even steady and never failing supply of humidity, most likely in the condition of vapor.

I could cite other instances where the moisture between soil and atmosphere being properly balanced, keeps not only the grape free from rot and mildew, but also the Pear tree free from blight, and to some extent, the Peach tree free from having its buds killed by late frosts in spring.

To the professional gardener and florist it is a well known fact, observable every time he is repotting plants, that the outside of the ball of earth, where it had been in contact with the inside of the pot, is one mass of fine fibrous roots; while the more interior portion of the ball contains scarcely any at all. The reason for this is, that the burnt clay, of which the pot consists, sucks up, and holds with great tenacity, a considerable quantity of water within its pores, from which the rootlets, without being immersed in the liquid, can draw whenever they need it. Broken pieces of rock,—especially the more porous kinds,—also narrow crevices in rocks, act in a similar manner to pottery; and, if gradually supplied in some way or other with the necessary amount of watery vapor, may give the desired result.

In advancing these views I cannot help expressing a wish to see them tested thoroughly. I will do my part in taking, as heretofore, careful observations of the state of the weather, and, especially, its humidity, day and night, if owners of vineyards of this and our neighboring States will do their part in observing closely the time of appearance of the *first* signs of rot, its progress and course. Also, in noticing vines of one and the same variety that may happen to be exempt from rot, while all the rest are affected by it. Also, the situation of these anomalous cases:—whether near a drain, cistern, well, or on loose, pebbly, porous banks of running streams; or beneath the eaves of buildings, where the rain drips from the roof and is stored up within the crevices of stone foundations. By comparing notes, we may then come in possession of many valuable facts and much useful information, and do our share in helping to settle a question that has so long exercised the ingenuity of fruit-growers and philosophers.



THE LATE DR. LINDLEY,

PROFESSOR OF BOTANY.

THE
GARDENER'S MONTHLY.
DEVOTED TO
Horticulture, Arboriculture, Botany & Rural Affairs.

THOMAS MEEHAN, Editor.
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DECEMBER, 1867.
VOL. IX. --NO. 12

Hints for December.



FLOWER-GARDEN AND PLEASURE-GROUND.

The practical operations of this department, at this season, do not amount to much. Pruning is the chief thing in order, and really this is often done with little more reason than a boy has for whittling a chip—merely to have something to do. For notwithstanding the many papers that have been written "on the philosophy of pruning," the naked question, "What is the best time to prune trees?" is one with which the gardener is continually bored. The keen-edged gardeners give the cutting reply, "any time when your knife is sharp," but the more good natured say, "It depends on what you want to cut for." The street cutter "wants to keep the tree head low," and cuts down to make them branch lower;" cutting in winter does not have this effect, so that unless one has some other object to combine with it, such as to clean the tree of bark scales or the larva of other insects, or the giving of employment to some half-starved tree carpenter, the work might as well be left undone. If you want a branch to push strongly at the point where you cut a part away, *prune in winter.* If your tree has branches crossing each other, or has half dead branches, or any thing tending to spoil the form or symmetry of your tree, prune in winter; but as a rule the less pruning is done, the healthier will be your trees, for it may be accepted as a rule in gardening that all pruning, whether in winter or summer is a blow struck at the vitality of the plant.

Sometimes we have to sacrifice a good object to gain some other point. So in hedges. The plants are usually trees. To *de*vigorate them and keep them bushy is our great object. The principal pruning is therefore in summer. The winter pruning is simply to keep them in shape. There is, however, one kind of pruning which just suits both the principle and the season, namely, thinning out where thick planting has been adopted, as it is now by all who want a new place to look well without waiting too long for the charm.

Our readers will do well to remember that it is not so much severe frost that hurts vegetation in winter, as it is severe thawings following the freezings. Every thing, therefore, no matter how hardy they may be, will be benefited by having something thrown over them, to prevent *early thawing.* Small things, such as hardy herbaceous plants, can be protected by a little earth, and there is nothing better. Seed-beds are also improved by this covering, but if earth is used for them, it should be very sandy, because it cannot well be removed, and seeds cannot come through stiff soil.

It would be well, at this season of leisure, to examine and decide on the course of improvements for the ensuing year.

It does not, in very many cases, require much time or money so to alter the appearance of a place as to make it bear a very different look to what it did in the past year. A new clump of cheap shrubbery may be planted, or an old one taken away to admit a new view that may have grown up since the original planting. A strip of grass may be laid down on what was once bare gravel. Here a small rockery may be put together; there a nest of roots thrown up, and ferns and trailing plants freely interspersed between them. In this corner you may place a stump, and entice Ivy or some climbing vines to grow over it—a rustic arbor may be formed in some inviting nook, and in another shade-enticing spot, a rustic chair or bench be fixed. Even the outlines of the flower-beds may be changed, or of the walks themselves, or even the contour of the surface in some instances, and all, in many cases, at the expense of a very small expenditure of time and money.

In all these undertakings, money, time and vex-

ation will be saved by consulting with men who make it their business to study such matters.—Every one can, of course, design and lay out his own garden, just as well as he could make his own coat, or design the pattern of his own chandelier; but he will find, in the end, that his landscape-gardener, his tailor, or his manufacturer of lamps, would have done the work much more satisfactorily for him. Many suffer from ill-fitting garments and ignorant pretenders; but the man who has not tact enough to discriminate in this respect, through employing botches, deserves to suffer by badly designed gardens.

Nothing "pays" like surface-dressings of manure or good soil to Evergreens and ornamental trees. Life is too short for mere natural growth. It is a pardonable vice to wish for large trees. Put on two inches of good stuff, and see how they will go ahead.

Where Evergreens have been planted late, they will suffer from keen, cold winds. Any loose brush thrown around and over them will help them much.

The winters experience will no doubt show how much the comforts and pleasures of a place will be added to by liberal planting, and while the sad experience is on one is the time to decide on the details. Good resolutions put off, likedeath-bed repentances, generally end in smoke.

GREENHOUSE.

The great effort of plant-growers seems now to be to have the greatest amount of flowers possible during the winter months. To have plants bloom freely at this season, heat, moisture and fresh air are essential. It is even good economy to lose some heat in order to gain the advantage of opening ventilators, or windows, if the weather outside be not favorable enough without. The Camellia, Azalea, Daphne, Stevia, Poinsetta, Euphorbia, Violets, Tree Carnations, Lopezia, Eupatorium, Cineraria, Perennial Candytuft, Deutzia gracilis, Tea and Noisette Roses, Epiphyllum truncatum, Hermannia odorata, Acacia, Bletia, Scarlet Geraniums, Strelitzia, Chorizema, and most kinds of Australian plants, Verbenas, Bouvardia, Heliotrope, are a few of the best things to grow for cutting, that occur to us as we write. The temperature should not often be below 55° to be secure of a good bloom.

Insects are apt to be troublesome in growing houses,—particulatly Red-spider, Green-fly and Mealy-bug. A free use of the syringe is a good preventive. Tobacco-smoke, in two or three light doses, is still the best thing for the Green-fly. The Red-spider, fortunately, shows his depredations more villianously than most insects,—light yelow lines or spots marking almost at once the scenes of its depredations. If one has good eyes, the finger and thumb will keep him down, as a slight and rapid passing of the finger over the leaves easily crushes his little body. When he becomes an 'army with banners," more scientific approaches must be made to give any show of success.

Pelargoniums become "drawn," spindly, and worthless, if they are not allowed to occupy the lightest and most airy part of the house. If fine specimens are desired, the shoots should now be tied down to the surface of the pots and pinched off so as to induce them to shoot freely; but a too frequent use of "finger and thumb" is bad,—nothing renders a Pelargonium weaker; rather encourage them to *grow* bushy, by the free use of light, air and manure-water.

A good supply of young *Fuchsias* should be coming on now. Re-pot as their roots fill each pot; let them not want for moisture or light; do not pinch off their tops, but let them grow rapidly. The temperature in which they are grown should not exceed 55°. A turfy loam, moderately enriched with well-decayed manure, and well drained with charcoal, suits them admirably.

The *Mimulus* is receiving more attention than it has been. Where they are grown, they are much improved by having pans of water kept under their pots.

Epiphyllums, as they continue to flower, will require the warmest part of the house, and a fair supply of moisture.

The most interesting tribe of plants at this season of the year is, undoubtedly, the *Camellia*. The buds frequently drop off before flowering; this may spring from three causes—from the plants being kept too dry, or from the drainage being bad, whereby the soil becomes sodden, or from the house being kept too warm by insufficient ventilation. As the leaf-buds burst, the plants are benefited by occasional syringings; and, indeed, an increased supply of water altogether, in order to accommodate the demands of the young growth.

Cinerarias will soon be the chief attraction. The least frost kills them, yet they will not do well if kept in a high temperature. They love moisture, yet are very impatient of damp. No plant is more improved by the use of charcoal in potting than this.

The *Calceolaria* will require the same conditions as the Cineraria.

Hyacinths that have been out of doors, or in any reserve place for protection, may be brought in a

few weeks before wanted; they should not have much heat, light or moisture for a few days, and then only gradually.

Carnations and *Pinks* are much admired when grown in pots and flowered there early. They do not flower well if too much warmth be given, but the usual temperature of the greenhouse will bring them forward a month before they can be had out of doors. Whenever the roots make their appearance through the bottoms of the pots, they should be shifted into a size larger. They require very little water, and love the light, and whatever manures are used to enrich the soil should be thoroughly rotten. The *Pansy*, on the other hand, delights in half-rotten, strawy manure and turfy loam. If a quantity of seedlings have been raised in the fall, they will require potting this month. They do not flower well here when the weather becomes warm; but when grown in pots, and forwarded slightly by the aid of a cool frame, they do very well.

Cacti and *succulent* plants generally, will scarcely require water at all, unless in very dry situations, and then receive but a slight sprinkling with a syringe. The rule "When you water a plant at all, let it soak right through," does not, by any means, hold good with these plants, if there be not some other good exception.

Oranges and *Lemons* will require the coolest part of the house, and to receive no more water than will just keep them fresh.

VEGETABLE GARDEN.

Very little can be done now in this department, except by way of preparation for another year.

Manure can be placed on the ground wherever required, and Asparagus beds, if not already done, should have a slight covering of it. Bean-poles, Pea-brush and stakes of all kinds should be got now, the tool houses gone over and put in order, and every thing kept in good order and studiously in its place. When the season of operations commences, there will then be nothing to hold back the attention.

Where there can be a heat of 60° commanded, Bush beans can be easily grown in pots, and can be gathered in two months from the time of sowing.

If there is abundance of leaves or manure at command, and small frames, beds may be put up for early spring salads at the end of the month.

Radishes and Lettuce are, however, very impatient of too much heat; they will come on well if the temperature be kept at 45°. When it goes above that, the sashes should be lifted entirely off.

The same remarks apply to the Potato and the Early Horn Carrot.

Cauliflowers in frames require all the air possible. Never allow them to become dry; this is the cause of many failures by way of "buttoning off."

Communications.

SOME OF THE DIFFERENCES BETWEEN NORTHERN AND SOUTHERN GARDENING.

BY P. J. BERCKMANS, ESQ., AUGUSTA, GA.

Read before Pa. Hort. Soc'y, Sep. 3, 1867.

The climate of the Southern States, below the 35th degree of latitude, is so essentially different in its influences upon vegetation from that of the Middle and Eastern States, that to do justice to the subject before us would require more space than can be given in a short essay. We must divide the subject in two sections—first we have the

FRUITS OF THE SOUTH.

The *Apple*. This being the most reliable in its products must rank as our first fruit in cultivation. For years past the prevailing opinion throughout the South has been that this fruit will not succeed well enough to be depended upon as a profitable crop. Happily, this prejudice is losing ground, and more attention is being paid to the cultivation of this fruit. The main failures are owing to the selection of varieties unsuited to the climate, and the training of trees as high-bodied standards. The Northern and European Summer Apples generally improve in quality here, but few late fall Apples of the North are worthy of cultivation; and, so far, I know no true Northern winter Apple that is of any value for us. The latter drop their fruit in August, before they are perfected; and, as a whole, are unfit for any purpose whatever. The want of Southern Winter Apples, long felt, is now amply supplied. Thanks to the efforts of our Southern Pomologists, we have now a class of fruits which are bringing the culture of the apple on a large scale a profitable feature here. As to the quality of these winter apples, numbers are of the very best description, and we have scores of varieties that will keep until April or May in the middle sections of the States of Georgia, Alabama, South Carolina and Mississippi.

The training of the Apple trees has been heretofore very defective. Having few works treating upon Southern pomology, the public have been dependant on the writings and teaching of the Northern pomologists; and, although no work has its equal in the world to "Downing's Fruits and

Fruit Trees," it will not do to follow it verbatim in every section of the country.

We require *shade*; in the Eastern States, *sun* is necessary to perfect fruit; hence our aim is to train our trees with low bodies, making the foliage of the tree shade its roots, and endeavoring to make the heads as compact as possible, and produce the fruit as near its centre as can be feasible. Hence high, naked bodied trees are short-lived—the bark is diseased on the south-west side, the heads are likewise deficient there, and, after a few years, the tree decays and dies.

The Apple tree begins to bear much sooner than farther North. Some varieties, like the Shockley, will produce remunerative crops the third year after transplanting. Others require more age; but as a rule, an orchard begins to bear well the fourth year of planting. We require young trees to start with, —one-year old Apple trees cut back to 2 feet are the most preferable. The Apple grows with such vigor that one-year old nursery trees often attain 10 feet growth upon ordinary upland.

The *Pear* is also well adapted here, if we except some varieties, which though of good quality North, become worthless. Others, again, improve in size and flavor. The season of maturity of most varieties is hastened. For instance, Doyenne d'Eté ripens beginning of June; Bartlett beginning of August. We are still deficient in Southern Winter Pears, few good varieties have been originated here, showing that the Pear requires more care in its reproduction than the Apple. The latter has furnished us with its best varieties from chance seedlings of the Indians; the Pear in general produces worthless fruits if unaided by a judicious knowledge in selecting the proper seeds.

We have been visited with very destructive seasons of blight, especially in the spring of 1866. This year we are entirely free from it.

The *Peach* nowhere attains the size and quality it does here. Its season of maturity commences by the 15th of June and is often prolonged until the middle of November, a period of five months. We require, therefore, a longer list of varieties than where the season of maturity scarcely lasts two months. The protracted warm weather gives to the fruit a degree of perfecti n unknown in colder latitudes.

Clingstones have long been the favorite class of Peaches in this country. They are more vinous and juicy than the bulk of the seedling freestone peaches, and the prevailing taste having once settled in that channel it is difficult to change it. Freestone varieties are the earliest to ripen, and for supplying Northern markets they alone are profitable to cultivate.

So far our best shipping peaches are about the same as those varieties cultivated largely North. We have several Southern seedlings that, in point of earliness, compare favorably with such kinds as Early York, but are immensely superior in point of size and flavor. The defect with them is that they are too tender to stand carrying to distant markets.

The finest of all clingstone peaches is unquestionably the Chinese Cling, a fruit that is of surpassing excellence and beauty, but it must be eaten without being carried far to enable one to appreciate it fully. Clingstones, if picked before maturity, do not ripen well, as they are apt to shrivel; and if left on the trees until ripe they cannot be shipped; hence the clingstone Peach must remain a fruit for home consumption.

The raising of peaches for Northern markets is again assuming some importance, wherever communications are easy and regular—especially along the railroad lines of South Carolina and Georgia, and the St. John River, in Florida. This, it is hoped, will increase in the same ratio as it did formerly.

The *Grape* has received much attention, and viticulture was becoming of some importance when the decay in the Grape made its appearance in 1862. Since that time it has declined in a measure, but is now again reviving, by the introduction of different varieties from those heretofore cultivated; and which have succeeded in most places. The Catawba was the variety generally cultivated. It has failed so much that few vineyards of that variety now remain.

Our finest wine grapes are the varieties belonging to the *Æstivalis type*. Their superior qualities can only be perfected in a warm climate; and, when well grown, there are no finer flavored grapes on this Continent than Warren, Pauline, Black July, or Devereaux, etc. Unfortunately, the former has generally decayed of late, the Pauline has become very unproductive; the Black July has stood well, but is not a heavy bearer. The Clinton has succeeded everywhere, and is now becoming a popular wine grape. Its season of maturity is end of July to 10th of August.

The great wine Grape of the South is the *Scuppernong*, which never decays, produces fabulous crops of fruit, and by its peculiar habit requires no trimming—three great points in its favor, particularly the latter, as the great drawback to successful vineyard culture has, heretofore, been the lack of experienced vine-dressers. The Scuppernong,

therefore, adapts itself to general cultivation. As to the wine produced, when properly made, it is certainly a superior article, of the Muscatel class. Experiments to produce improved varieties of the Scuppernong have not resulted in much progress.

The *Flowers* and *Thomas* Grapes are the only varieties deserving any mention. One is of a pink color, sweet, and otherwise like Scuppernong; the other black, very large, and ripens late in October, which is its only merit. The future success of vineyard cultivation here must look to the Scuppernong as its main reliance.

Our best early grape is as yet the *Hartford Prolific*. It ripens from the 25th of June to July 4th, has not decayed, produces very abundantly, and the bunches are of large size and fine appearance. It stands carriage better than any other variety,—for supplying the Northern markets it is very valuable. Its average price here, in quantities, is about 75 cts. per pound.

Miles colors sooner than the former, but is only 2 or 3 days earlier in maturity. Its quality is much better, but the bunch and berry are smaller. It is very prolific and free from decay.

Perkins is also an early variety,—ripens July 4th,—of second quality as compared with Hartford, but very profitable as an early market variety.

Delaware will long remain one of our very finest early Grapes. Its quality is also much improved by being brought southward. Never decays, and ripens July 4th to July 8th.

Concord comes next, and holds its rank among the standard varieties. Its only defect consists in the thinness of the skin, preventing its being carried to distant markets, unless handled with great care. These form a class of early market varieties. They are reliable in their production, and their cultivation can be made a most profitable branch here, as they can be shipped North at least six weeks before the Grape begins to ripen around New York.

A word about Israella and Iona, as these two varieties have lately attracted the principal share of notice:

Israella here and Israella as produced in its native place are two varieties. The climate of Georgia adds so much to its quality that all who tasted it here pronounced it the best grape in cultivation, not excepting Delaware. If two seasons of production can give us a right to emit our opinion, we would say that, so far, it combines every requisite quality in a grape. It ripens with Delaware, and, from its large size, exquisite quality and earliness, it must become very remunerative in its cultivation.

Iona loses, on the other hand. Its quality is as good as could be desired, but its skin is very thick and it mildews badly.

Our grapes, like our fruit trees, must be trained so as to shade the fruit as much as possible, and in the class of wine grapes especially so. Our vintage takes place from end of July to end of August for most varieties, and the temperature being very high the wine maker has to guard against datic fermentation; our object then is to retard the maturity of the fruit as late as we can.

Strawberries have their season of maturity lengthened to such a period as to preclude the production of the heavy crops of the New Jersey and Pennsylvania growers. Some years we commence our first gathering of fruit by the 10th of April, and have daily, small pickings until middle to end of June; and often we have a second crop in July. This tends to exhaust the plants: still, Wilson's Albany will stand heavy cropping and, by liberal fertilizing, I have had beds in good production since 1861.

The best variety yet found is Wilson's Albany. The European varieties will not stand our long, hot summers. Triomphe de Gand alone may be excepted. This variety seems to be acclimatized. Strawberry plants set out here during the winter will produce a fair crop the following spring. If plants are procured from the North, they generally commence a vigorous vegetation as soon as planted out, and are liable to be killed by the first cold weather. It is preferable to procure Northern plants in the spring, if this can be done; they then succeed better, as there is no interruption in their growth. Strawberry plants are more difficult to acclimatize than any other class of plants. Their offspring, however, are as hardy as the parents in their native locality.

Few Raspberries will succeed here. The varieties belonging to the types of Purple Cane and Wild Red will have some chances of success: but this fruit can never be made the means of a lucrative business. The European varieties seldom survive through the first summer. They produce a fair crop in the spring, but few plants pass through August.

Gooseberries and Currants are worthless; it is futile to attempt any further experiments with either.

The Fig could be made the source of a large branch of trade, especially in the lower sections of the Southern States. A few varieties are unfit for open field culture in this immediate section, but 50 miles south they all thrive. Our most reliable varieties are the Brown Turkey and Green Ischia; they

never fail to produce large crops. More attention should be paid to the cultivation of this fruit for commercial purposes.

The Cherry cannot be called well adapted to sections south of this, but as we progress towards the upper part of the State it begins to succeed, and 75 miles north it produces abundant crops. The tree stops its vegetation in July, remains dormant for a few weeks, then it takes a new start of flowers and leaves, thereby exhausting itself as to the production of large crops of fruit.

The Plum is entirely free from the Black Knot; and, where the Curculio is attended to, it produces large crops. Our native varieties are comparatively free from the depredations of the Curculio. Immense crops of Wild Plums are yearly produced all over the country.

The *Chickasaw* Plum possesses a flavor peculiar to itself, and this variety is the basis upon which the future improvement of a race of Plums suitable to this section must rely. We have several very good, wild varieties, the largest portion being clingstones.

The Mulberry is much cultivated as food for poultry. The Hick's Everbearing, a seedling of Morus multicaulis, produces an insipid fruit during three and four months, and in immense quantities. Downing's is of a rich, sub-acid flavor, but bears fruit only during 6 weeks.

Pomegranates seldom fail to produce fruit if they are somewhat protected by the neighborhood of buildings. As an orchard fruit, it should not be relied upon here, although southward it never fails.

The Blackberry grows in great profusion, and the fruit is very large and rich, many varieties being as large as the Lawton. The cultivation of this fruit as a market produce will not pay here. They are so abundant everywhere, and ripen before the bulk of the Strawberries is passed, that a fine quality of cultivated Blackberry will bring no more than the wild kinds.

Olives and Jujubes succeed well but are little cultivated; otherwise they are objects of curiosity. Near the sea-shore the Olive thrives admirably, and the oil produced compares well with the best Italian. This, again, is a fruit that should not be longer neglected, the lower part of Georgia and the whole of Florida being eminently suitable to its culture.

These are the principal fruits cultivated here, and we must now give some space to the

FLOWERS AND ORNAMENTAL TREES.

CONIFEROUS.

Of the class of *Arbitieæ*, the sections of *Tetragone* and *Angular leaves*, and falling cones are sometimes successful. The *Norway Spruce*, *Hemlock* and *Abies Morinda* will make medium-sized trees, but never come to perfection, as in higher latitudes. The *Silvered leaves* or *Firs* do not stand the climate at all. If they do not die the first season after planting, their growth is so stunted as to prevent ever making anything of them.

The section of *Pinus* has many fine varieties. P. strobus and P. excelsa attain fair proportions. No finer variety can be found than the native *P. palustris*, when about 15 feet high. Its leaves often attain, when young, 18 inches in length, and the body of the young tree is entirely covered with a dense foliage. Unfortunately, it is too common everywhere, and, perhaps, not susceptible of full development as far north as Philadelphia. Pinus Austriaca, and others of the same class do not thrive as well as further North. *Pinus patula*, of which I saw a splendid specimen some years ago, now, unfortunately destroyed by *military necessity*, was a most thrifty variety, and a tree of great beauty.

The Araucaria section has some magnificent representatives. The A. Braziliensis attains a height of forty feet, and is perfectly hardy; a tree of surpassing beauty. A. fimbriata grows slower, but is also a very fine tree.

I have not seen either A. excelsa or Bidwillii tried in open air, but have no doubt they will succeed a degree south of this. Cunninghamia makes a remarkable thrifty tree, of great beauty when raised from seed.

The *Deodar* Cedar finds here a climate suited to it, and there are now specimens that attain nearly 50 feet in elevation. It never browns in winter, but sometimes requires its leader to be trained, as it is apt to bifurcate.

Cedrus Libani is unsuited to the climate. *C. Argentea* thrives better, and makes a tolerable tree. In the *Cupressinæ*, we have the Cupressus funebris, Cashmeriensis, torulosa, Lawsoniana, Lambertina, sempervirens pyramidalis, &c., that make admirable trees. The sinensis pendula, MacNabiana, Goveniana, thrive equally well. C. ericoides has attained ten feet in height, and is an exquisite tree. It turns perfectly purple in winter, making a striking contrast with its congeners. Most of these varieties seed freely.

The Junipers are also of vigorous growth, excepting such varieties as J. recurva, J. prostrata, and others, like the latter, of extreme Northern origin. Our finest Junipers are Communis Hibernica, Chinensis, and oblonga pendula; and, in the trailing section, the J. squamata stands unrivalled.

The Arborvitæ, especially the Asiatic section, are very thrifty. No idea can be formed of the beauty of a large and well grown Golden Arborvitæ (Biota aurea,) and it is well appreciated. We have many specimens in this neighborhood ten feet in height, well filled from the bottom, and as symmetrical as if the topiary artist had taken great pains to train it. For hedges, the Biota stricta is much used. It does not brown in winter as Thuja occidentalis. Seedlings from Biota aurea are now much used as hedge plants.

Biota filiformis pendula forms a singular tree with its thread-like branches. B. Meldensis is of most rapid growth, but liable to turn brown at the first cold weather. The Thuja ericoides, of which we have specimens five feet high, is a beautiful dwarf variety, but also liable to brown in winter. The Thuja gigantea, of which I have seen specimens twenty feet in height, is a truly magnificent tree, and of rapid growth. Thuja Lobbi is a subvariety of gigantea, very compact and beautiful. But the King of all this class is the *Libocedrus decurrens*. Nothing more admirable can be found. One must see specimens twenty-five feet high, to form a correct opinion of what this tree really is.

The *Callitris cupressiformis*, Frenela Ventenati, Libocedrus Doneana, are liable to be injured by spring frost. Our finest specimen of the former, 15 feet high, was entirely killed by a spring frost in March.

The Cryptomeria grows remarkably fast, but turns brown in winter, and from that cause has never been popular. The Callitris quadrivalvis rivals in beauty with the Biota aurea, but it is sometimes injured by spring frosts.

For the *Taxineæ*, we have few varieties that are thrifty. The English and Irish Yews are of very slow growth, and we can only grow the broad-leaved sections with success.

Podocarpus Japonica is very desirable, as it grows quite rapidly. *Torreya taxifolia*, a native of Florida, seems to do best in its native locality. I have never seen any good specimens as far North as Augusta.

But the great treasure of our horticulturists consists in the endless varieties of

BROAD LEAVED EVERGREENS.

First, the *Acacia dealbata*, as a tree of rapid growth and exquisite delicacy of foliage, stands foremost. It will grow to twenty feet in height in 3 years, and when loaded with its multitude of golden flowers, contrasting with the Ashy hue of its foliage. The only regret we have, is that it is not hardy everywhere. It was injured three years since in March. This is the only variety of its class that is hardy here, although most of the Ingas are hardy about Tallahassee.

The Camellia stands the coldest winters uninjured, and a specimen of twenty feet in elevation, well-trained and covered with hundreds of flowers, is a sight not uncommon in the vicinity of Charleston and Savannah. The colored varieties are hardier than the white, as regards resistance to frost in the flowers, but the plant itself is never injured by frost, although it suffers sometimes from the heat in sandy soils.

Many plants, like Ardisia, Abutilon, Acacia popignac, Daphne odorum, etc., will stand through our winters if they are planted on the North side of a building, so as to keep the sun from them as much as possible. In this way we are enabled to grow many varieties of plants which would not stand if planted where they have the full sun.

The Cape Jasmine is much used as a hedge plant, and can be trimmed in any shape. The dwarf variety, Gardenia radicans, makes a neat plant for edging large flower beds. They are most readily propagated by layering.

The Euonymus japonica is the general favorite as a hedge plant, and extensively used for that purpose. Many persons plant the cuttings, as practiced for the Boxwood at the North.

The Ligustrums, Illicium, Photinea, make beautiful evergreen trees; the latter is particularly effective in the spring when covered with a multitude of flowers. The Cerasus Caroliniensis, a native of Georgia and South Carolina, is a beautiful tree, and can be used to advantage, either as single specimens or as a hedge plant for tall hedges, such as to protect tender plants, or as screens for buildings, etc. Cerasus Laurocerasus thrives admirably, but not so with the C. Lusitania, which is sometimes injured by frost. Both are much attacked by a borer, similar to that of the Peach.

The plant that, with Euonymus, adapts itself best to the topiary art, is the *Pittosporum tobira* which is a most desirable variety. The green grows with more rapidity than the variegated. During the winter and spring months our gardens are perfumed with the exquisite odor of the *Olea fragrans* and it is justly a universal favorite. We have specimens fifteen feet high.

But our fragrant shrubs do not end there. The Laurustinus, Viburnum odoratissimum and Magnolia fuscata, each, in turn, by the abundance of their blooms, lengthen the flower season from fall until the deciduous spring bloomers commence to give their treasures. Our king of Evergreen trees

is the Magnolia grandiflora, which grows to great perfection. Raised from seed, the characters of the leaves and flowers differ; some varieties produce flowers scarcely four inches in diameter, where others have produced flowers measuring fourteen inches in diameter, and with twelve petals.

The Cork Oak is perfectly acclimatized, as also several species of Evergreen Oaks from Japan, among which the finest is *Quercus Ilex latifolia*. They can all be inarched upon our native evergreen oak (Quercus virens), and make another addition to our valuable trees. The Tea plant is being much cultivated in some sections as an article of commerce. The plants are very effective; their white flowers resemble single Camellias. They seed freely at 4 years old, and plants are now susceptible of being produced in large quantities.

The woods abound with many fine Evergreen trees, such as the Holly, the Magnolia glauca, the Andromeda arborea, the Illicium Floridanum—so effective with its red flowers—and many shrubs and climbers of great beauty; many that could, doubtless, be cultivated several degrees further North. All the Deciduous Shrubs cultivated in the latitude of Philadelphia thrive here, with few exceptions; such tender plants as Deeringia, Leicesteria, etc. are injured by the warm weather, and are therefore not desirable. Still, their loss is compensated by the hardiness of such plants as Clerodendron Bungei, Nandina, Poinciana Gillini, etc.

The double-flowering Pomegranates are very effective. We are also rich in climbers. Besides the hardy varieties cultivated North, we have several acclimated exotics. The Wisterias of the Chinese class seed freely, and are extremely vigorous, the white as well as the dark colored. The W. frutescens magnifica is still more prolific, and different colored varieties could be produced by experimenting with its seedlings.

Lonicera aurea reticulata stands the sun remarkably well The Japanese and Chinese varieties are exquisitely fragrant. *Solanum jasminoides* is much used as a climber, and is constantly covered with flowers. The Bignonia grandiflora seeds freely, but its offspring seldom produces flowers equalling the parent. Some years ago, the late Dr. Ward, of Athens, raised a Bignonia from seeds received from South America. It produced golden yellow flowers of great effect. It is perfectly hardy, and resembles, or is similar to, B. Tweediana.

The Rose is at home here, and nowhere have I seen it succeed better. All classes are hardy, no protection whatever being required for the most tender varieties. The middle of March opens the flowering season. In April the whole tribe is in its glory. The Banksias open the display. The white variety is much esteemed for its odor, resembling the violet. The last in bloom are the China, some varieties often giving us flowers at Christmas.

The Climbing Noisettes grow to extraordinary size. There are specimens of Cloth of Gold, trained against the wall of a factory, that cover several hundred square feet, and extend to the fifth story. The Bourbon, Tea and China roses, with the short-jointed Hybrids, are the general favorites. The long-wooded Hybrids do not bloom well during the summer months. Where the climate is so favorable to this beautiful flower, it is appreciated freely, and no flower is more universally cultivated.

Their propagation is quite simple, except a few very dwarf varieties, or some of the Hybrids devoid of thorns. We set the cuttings in open ground in November. Whole acres are thus planted, and when carefully attended to, the loss in cuttings failing to strike is very small. Some varieties will, however, not stand this mode, and they require somewhat different manipulation. The vigor of some varieties is astonishing, and hundreds of Hybrids will average five feet the fall after the cutting is planted.

As the Marechal Niel has attracted much notice, I should remark that where the flowers first open in the summer months, the variety is apt to disappoint the purchaser, as its color is nearly pure white. It is only in the spring and, especially, in the fall that its full rich color is at its height.

Our Bedding plants are not so varied as where the climate is less fiery in the summer. Still we are enabled to cultivate a large quantity. Geraniums will stand any degree of warm weather, and bloom profusely. The Zonale Geraniums, and some of the scented sections especially; but the Silver and Gold-leaved, Mrs. Pollock, &c., are worthless as bedders.

Some winters are so mild as to allow Geraniums to remain out-doors uncovered; but by covering them in November they can be kept flourishing for several years. *Lantanas* are admirably adapted to this climate. They form constant masses of blooms, and no warm weather affects them. Heliotropes, Cupheas, Pentstemons, Tritomas, etc., succeed admirably; but such plants as Fuchsias, Dielytra, Cinerarias, Calceolarias, Carnations, are no value out-doors.

Verbenas are seldom without flowers winter or summer; but the finest imported varieties melt away as soon as June appears. It is preferable to raise them from seed. We cannot, it is true, pos-

sess the very best collections of more favored climes, but out of a few hundred seedlings we manage to collect enough to make a tolerable display, and we secure a race of plants that are acclimatized.

Dahlias cannot come up to the standard of excellence of the English or Northern grown flowers. The plants commence to bloom early in May, and unless we retard their blooming until September, we do not get fine flowers after the first few weeks. Seedlings originated here are also more hardy and will succeed better than imported varieties. It is like with fruits: those originating in the country are preferable to those of foreign birth.

JOTTINGS FROM LOUDON CO., VA.

BY J. G. R. K.

Dear Monthly:—A short drive recently through a portion of what is called the Loudon or Catoctoon Valley, impressed me forcibly with the unsurpassed beauty and natural advantages of this favored spot. The Valley is gently waving and dotted beautifully with woodland, on the left, going southward, runs the Catoctoon Mountain, on the right the Blue Ridge, about 10 miles between. Limpid streams of water meander through every portion of it, and every few miles affording excellent water power. 'Tis very seldom that wells have to be sunk to obtain water. The soil is generally fertile and susceptible of the highest improvement. The crops here never entirely fail from drought, the soil being of a retentive clayey loam generally.

The effects of the war are still felt and seen considerably, but it is astonishing with what rapidity the country is being resuscitated. As I drove along, the luxuriant cornfields were like seas of green. The thickly nestled stack-yards bespoke the treasures emboweled in the soil. The orchards though meagre in extent were loaded with the richest gold and crimson. The richness of the scene awakened feelings of deepest gratitude to the giver of all good.

I do not see why our people do not grow more fruit; much of our soil, particularly the Mountain slopes are famous for fine fruit. The Loudon and Hamshire Railroad is being rebuilt, and will soon penetrate our Valley. Already the demand from the cities on the tide water is being felt here for fruit. I feel sure that the skill and enterprise of northern fruit-growers would tell here to the best advantage. One orchard on the road-side presented a grand sight, the trees were principally Wine Sops and were so full of apples that at a short distance they seemed *stacks* of red. The fruit was very perfect and healthy. This variety is well adapted to this locality. In another orchard the Loudon Pippin predominated, and though not so showy at a distance, was truly magnificent. This variety is getting a big name here at home, and is "highly honored in its own country. Mr. Downing describes it favorably, but does not do it full justice.

The shy bearing character while young prejudices some against it; but when in full bearing it more than makes amends. The habit of the tree is peculiar; though rampant in growth the head never gets crowded and needs no thinning. Almost every apple has full room and light.

I should like to hear from any one who may have it growing northward. If it were a little later maturing, it would be the king of apples here. If Loudon County never produces another new variety, she deserves a full meed of praise for this.

I called on our mutual friend, O. Taylor, at his "Evergreen home," and found him as busy as any good horticulturist should be, canning peaches, with his large agricultural boiler steaming up with the first batch. My attention was soon attracted to the process of peeling the fruit: there was a real bona-fide peach parer, doing the work as nicely and expeditiously as any apple parer ever operated on an apple. A happy idea thought I, and guessed our friend's cranium was its parent. It is a most capital thing and will be hailed by all fruit-growers with delight. The construction of the machine is very simple, but was entirely new to me, and I suppose will be to all, as I have never heard of anything of the kind out, though I have felt the need of it.

I do not feel at liberty to describe it, as he writes me he has applied for a patent, which it surely deserves. He adds that it continued to perform throughout the whole job of peeling admirably, and he peeled wagon loads.

I had the pleasure, too, of seeing in his grounds the Keyes' Tomato, but was not impressed very favorably with it. The fruit was running *very* small at the time (17th of Sept.). I also saw it in another locality a few days previous, where it was considered very inferior, and no earlier than any other varieties.

The Eureka strikes my fancy as superior to anything out; not having tested it fairly as to earliness, I am yet undecided in that respect, but it behaved well throughout the season. Its stocky, dwarfish habit of vine or bush is a great recommendation. I should be glad for the history of the variety. I shall grow it largely next season.

[The Eureka was, we believe, raised by Jonathan Periam, an intelligent market gardener of Chicago, and very well known to the readers of the *Prairie Farmer*.—Ed.]

NOTES ON POTATOES IN OHIO.

BY A. B. BUTTLES, COLUMBUS, O.

Owing to a protracted drouth, which has lasted from about the 20th of June to the present time, the season has proved very unfavorable for the potato, in this part of the country. Owing to a proper selection of varieties, deep plowing, and good cultivation, I succeeded in growing on 32 acres, about 3000 bushels, which is about one-half the yield I should have counted upon in a favorable season. Quite a number of experiments were carried on, as to varieties, size of seeds, methods of planting and cultivation, manures, &c., which the dry season has rendered comparatively valueless; still, I furnish you a few notes as to some of the new varieties.

Harison. This splendid potato has proved first-class in every respect, and has yielded more than any other out of *sixty-two* varieties, cultivated this season. Half an acre, in drills three feet apart, single eye sets every ten inches, manured with 120 lbs., Coe's Superphosphate yielded 104½ bushels, and with suitable rains, I am certain the yield would have been 400 bushels to the acre. There was no appearance of disease in either vine or tuber.

Early Goodrich, has fully maintained ts reputation as the best early potato grown; yield on best half acre 72 bushels, with same treatment as half acre of Harison given above. Matured earlier than *White Sprout*, *Early June*, *Early Stevens*, or *Early Sovereign*, but not quite so early as the *Early Sebec*. The latter has proved a most excellent potato for the table, but is not near so handsome and prolific as the Early Goodrich and therefore is not so valuable for market.

Orono. This new variety, so highly extolled at Agricultural Department in Washington, has turned out exceedingly well. It is large, white flesh and skin, superior quality for the table, and free from disease or rot; not so good shaped, and rougher than *Harison* or *Early Goodrich*. One and a quarter acres yielded one hundred and sixty bushels.

Cuzco. Last season, which was a very wet one, the Cuzco yielded enormously, and was almost entirely free from rot, keeping well and improving in quality until spring. This season, the yield has been moderate, the tubers very bad shaped and rough, with as much or more rot than any other of the many sorts cultivated. Per-contra the *Calico*, which was comparatively poor last year, has been this season unusually fine in quality, yield and appearance, seeming to luxuriate in a dry, rather than a wet season.

Monitor. This large and coarse potato, procured two years ago from Philadelphia, at a large price, proved the same as a sort common here, called the *Shotwell*, which is identical with the *Prairie* Seedling of Illinois, and I am inclined to think the *Shaker Fancy* will prove to be one and the same.

Gleason, *Garnet Chili*, and *Pink-eye Rusty Coat* have maintained their reputation, as amongst the best of Goodrich's earlier seedlings.

The *New White Peach Blow* has proved a very fine potato, both in yield and quality and may be said to be "rot proof." *Early York* extensively advertised as something new, last year, has turned out to be the *Buckeye*, which is still a valuable medium, early variety. The famous "Patterson's English seedlings" and other English varieties, sent out by B. K. Bliss the past season, have fallen very far short of the high position claimed for them. This may be owing to the fact that the seed sent were "small potatoes," indeed, and entirely unfit for planting.

AT KNOX'S AND ALONG THE SOUTH SHORE.

BY M. H. L., SANDUSKY, OHIO.

(*Continued from page* 331.)

At the time of our visit currant cuttings of the White Grape were being made and set. These then get fairly rooted before winter sets in. But we tire the reader. In fine, at Knox's there is everywhere thrift, and everywhere careful culture. If any variety succeeds with him by good husbandry, he plants more largely, is more painstaking, and harvests a greater success.

Most hoe and dig in the garden, but give over their fields to the horse and plow. Knox hoes and digs in his garden of an acre, and no less in this great Fruit Garden of 160 acres.

At North East, Aug., 27th, there was a large gathering of the Lake Shore Grape Growers. Let it be noted that the good people of North East throw wide open the doors of their hearts and their houses to him who grows or loves the vine. Their public table at the Wine House amply provided meat and wine for 300 guests.

At the discussion which followed this splendid collation, attention was specially given to reports upon the promise of the grape in all the regions represented. An evening session continued these reports, and we purpose simply to give the gist of all that was said and observed, without reference to the sequence of the proceedings here or elsewhere along the Lake Shore.

Mr. William Saunders, of the Government Gar-

dens, Washington, said that of 120 varieties of Grapes under his care, all show mildew, except a very few, as Clinton, Ives, Concord and Norton's Virginia. Thinks sulphur the best remedy. The hardiness of a vine is in proportion to ripeness of wood. Allen's Hybrids are hardy when the canes are well matured. We must look to the Frost grape, Vitis cordifolia, and especially to the Clinton family, for our perfect wine grape.

Mr. Hoag, and others of Lockport, N. Y., find great encouragement in the grape prospect of this season. No rot, some mildew on Catawba and Isabella. Clinton has rotted badly some seasons, none this. Perkins, Concord and Hartford are very productive. Iona and Israella doing well, except with Mr. Crane. He complains of their unhealthy foliage. No rain in that region since May. The Delaware a great success—perfectly healthy.

At Geneva, N. Y., Messrs. Bronson and Merrill spoke favorably of the prospect for Catawbas, Isabellas, Ionas and Delawares. Some mildew on light soils.

A fine crop anticipated at Hammondsport, N. Y. Mr. Champlin says there is no mildew in Pleasant Valley, and no rot. Hartfords ready to ship 1st of September. Have high hopes of the Iona for wine or table. They begin to color the 17th of August. With Mr. Bateham, of Painesville, O., the Iona is doing finely on a light-colored, sandy soil; but near by on a dark, rich land is mildewing badly. Mr. Brehm, Waterloo, N. Y., expects a good crop. Attributes the little rot to over-manuring.

Mr. Moss, Fredonia, N, Y., looks for but half a crop. Wood poorly ripened and suffered from the winter. Some rot for the first time.

Mr. Campbell, Delaware, O., finds the Concord rot some; the Delaware healthy and fruitful; the Iona making a better record than last season. He covers it against frost. It winter killed where exposed. Foliage of Rogers' Hybrids good, fruiting fairly.

Treasurer Leonard reported the Concord succeeding best near Chicago. Some mildew in Prof. Kidder's 2 acres of Catawbas. At Evanstown, Catawbas healthy.

Mr. Bement, Toledo, O., calls the Catawba a failure in his vicinity—Delawares and Concords are fine. Mr. Summers, Vermilion, O., states a fair crop in their 200 acres of grapes. Some rot in Catawba, slightly in Concord, and none in Delaware and Iona. Catawbas on gravelly-clay ridges, 3 miles from the Lake, rotting worse than on the clays near the shore.

Mr. Phillips, Berlin Heights, O., has 25 Ionas in bearing. Very little mildew, no rot worth mentioning. Israella foliage not so good as Iona. Dr. Griswold, Elyria, says, at Avon Point, where the bearing vines are principally Catawba and Isabella, the rot showed itself first and worst upon the black, loamy soils; afterwards, slightly, on the clay. Nearly 300 acres planted in this locality, principally Catawba, Concord, Ives' Seedling and Delaware. On the best grape lands nearly a full crop.

Younger Mottier, Dover Bay, O., stated no rot at all. A little mildew on the Clinton leaves. The Dover Bay Co. have 30 acres in bearing this season, and 30 more planted. Varieties chiefly Catawba, Concord, Delaware and Ives.

Capt. Spalding thinks there is 10 per cent. rot in Catawbas about Cleveland; Delaware all right; Creveling neither mildews nor rots. Mildew somewhat on leaves of Iona, Rogers' No. 19, Concord and Hartford.

In the territory embraced within 3 miles around Callomer, Ohio, President Dunham finds little rot on the clay soils. Delaware, Diana and Concord healthy.

At North-East much disappointment was felt by visitors at the scanty fruiting on the 100 acres of the South Shore Wine Co. The mischief was in part due to rot. Vines healthy and culture excellent. The young vineyards of Iona, Israella and Delaware, 2 years, were in admirable condition. There is a big surprise ahead, when a great crop comes in from these vines.

Excellent sparkling from the Pleasant Valley Co., and Ives still wine from the Longworth House, Cincinnati, brought the observations and discussions to an agreeable and spirited close.

At Put-in-Bay, Ohio, the company of 30 or more soon made themselves more or less familiar with its 400 or 500 acres of grapes. The soil is a gravelly clay loam, perfectly drained by fissured rock beneath. The vines were evidently suffering from the severe drought, no rain of any consequence having fallen since the 25th of May.

The older vineyards showed some rot, the younger scarcely any. These are Catawba. The Delaware looked well and had a burden of fruit. A few rows of Ives on the grounds of Mr. Sibley, were a handsome show in vine and fruit. Isabellas and Concords in fine trim, bearing very well. A wine Company has just been organized here with a capital of $75 000.

On Catawba Island and the Peninsula, where there are more than 900 acres in vineyard, the healthfulness of the vines, the fullness of the crop and the intelligent attention of the vineyardist to this

great interest, moved all the visitors to the expression of delight and praise. The soil selected is generally a stiffer clay than is found at Put-in-Bay.

Here the tour of the Committee and visitors ended. To complete the survey of this vicinity, we will add a few words.

Around Sandusky only the Catawba shows much disease. There is more apparent on soils containing much organic matter, all other things being equal, as drainage, location, &c., than on heavier clays. The Delaware and Hartford show no rot, Ives and Isabella none. Generally here and on the Islands, though the drought has been terribly severe, the vines have made excellent growth. Of late, the leaves of the Catawba and Isabella have curled and blighted somewhat, the effects of mildew or drought. We've had no fogs, and on the Islands no dew, yet equally there is blighting of the leaf. There is ample foliage left in health to ripen the wood and fruit. In fact the Catawbas to day, (Sept. 15th) are pleasant to the taste, almost pulpless, fully two weeks in advance of ordinary seasons. There will be a fair crop on Kelly's Island. Here are the oldest vineyards and rather heavy losses from rot. No disease on the Delaware and a fine crop. Concord and Hartford bearing heavily. The Mottled at Mr. Carpenter's is a very gratifying sight. They are healthful in vine and bend under the weight of well compacted and numerous clusters. An Iona vine in bearing shows mildew and rot. No. 15 Rogers appear quite diseased, Nos. 4 and 19 healthful and very promising, No. 3 is now nearly ripe and very pleasant; bunch too loose. No. 1 mildews on leaf and berry. Soil stiff clay with southern aspect, close upon shore.

The Kelly's Island Wine Co., has a capital of $100 000 and more. It has already bought up grapes largely for wine. Has no difficulty in disposing of its vintage at very remunerative rates.

VARIATION IN SEEDLINGS.

BY W. H. MILLS ESQ., HAMILTON, CANADA.

The readers of your Magazine, I trust, will not be surprised at the enunciation of a theory which to many may appear new, on account of its recent promulgation, yet it has the highest authority for its sanction. I believe in common with a certain class of thinkers, that there is nothing new under the sun; that special intervention of new creations cannot possibly take place. That certain immutable laws govern matter. The ever past, the endless future, will add nothing to or take from its sum total. But in its broadest and most comprehensive sense, I would inculcate the thought that the molecular condition of matter is subject to ceaseless motion, in the elementary as in the aggregate. That only through this theory can we account for the variations in the flora of our planet, (the doctrine is applicable to all matter). The philosopher of the present day, having not only the experiences of the past, but the wonderfully increased experimental experiences of the present, and other favorable conditions of investigation, brings to bear a number of facts to show the reciprocal relation and motion of matter.

Let the reader then divest himself of all thought of quiescence in matter, and bear in mind, that its conditions are constantly changing; and by another imperious law that, of indestructibility, must exist in some other state of being when no longer required to perform its present function. The process of change is rapid or slow—dependant upon the formation of the compound. Pursuing this idea of perpetual motion in matter, a profound conviction seizes our judgment that all things are convertible and that you and I, reader, can claim a lineage considerably older than the present historical record. That motion produces heat, light, electricity, magnetism and affinity—that these are convertible terms, that is, one can change into the other.

This potential energy called motion is derivable from the sun. Speaking of the relationship of the sun to life (and life is motion), Dr. Tyndale, in his lectures on heat considered as a mode of motion, sets forth in the strictest mechanical truths "that the sun rears the whole vegetable world, and through it the animal; the lilies of the field are his workmanship, the verdure of the meadow and the cattle upon a thousand hills. He forms the muscle, he urges the blood, he builds the brain. His fleetness is in the Lion's foot, he springs in the Panther, he soars in the eagle, he slides in the snake, he builds the forest, and hews it down, the power which raised the tree, and which wields the axe, being one and the same.

The clover sprouts and blossoms, and the scythe of the mower swings by the operation of the same force. The sun digs the ore from our mines, he rolls the iron, he rivets the plates, he boils the water, he draws the train, he not only grows the cotton but he spins the fibre and weaves the web. There is not a hammer raised, a wheel turned or a shuttle thrown that is not raised and turned and thrown by the sun. His energy is poured freely into space, but our world is a halting place where this energy is conditioned, here the Proteus works his spells, the self-same essence takes a million shapes and hues, and finally dissolves into its primitive, and almost

formless form. The sun comes to us as heat; and between his entrance and departure the multiform powers of our globe appear, they are all special arms of solar power, the moulds into which his strength is temporarily poured is passing from its source through infinitude."

Thus we are enabled to see that every germ of life is subject to an ever varying condition, hence the multiform flora and fauna. Man's experiences in past, have made for us in this age our acute perceptions and sensations; our reliable deductions are based upon experimental philosophy, the stepping stone from darkness to light. We know that similar conditions produce similar results, and also that an exact similitude of condition is impossible in organic life, and that certain applications retard or facilitate vegetation. We seem approaching the subjugation of the mysteries of organic change, taking the sun as the source of life through its heat given to our planet, and this heat power as an equivalent of the sun's molecular motion, convertible into molecular motion on our globe; under this power then every seed for germ finds its origin in some form in the perfected organization of a tree, each seed has its beginning influenced and sustained by its parentage during a brief interval of time, and just at this period, the lines of similarity are established by a magnetic impress the immediate result of molecular motion. This inception of new life retains the impress of its progenitor, merely as a directive agency, that is the power to produce merely the likeness of an apple to an apple, peach to a peach, pear to a pear tree, so that no sudden change, such as an apple tree producing a plum, could take place. The organic compounds which go to build up the vegetable tissue acting under this directive agency of the seed, serves to build up the fabric in its characteristic type; subject to many surrounding influences, these lines of similarity or first impression are diminished or increased by favorable or unfavorable conditions such as for instance, the difference we recognize in the flavor and tissue of fruits in wet and dry seasons, the growth of the tree also is effected. These forces and forms are not lost, but are given off in the effort of perpetuation of new being in the process of reproduction. To take into consideration the whole of these mutual relations and conversion of force, would surpass human ability.

In the August No. of your *Monthly*, Mr. P. Woodley has touched some interesting questions relating to variation. Variations which are referable to so many contingencies, both in the supply of heat and its concomitant, as well as in organic supply of carbonic oxygen, hydrogen and nitrogen, that the chances of establishing similar results are most remote. Dr. Mayer says, "That special attribute of the vegetable germ is its power of utilizing after its own particular fashion, the heat which it receives and applying it as a constructive power to the building up of its fabric after its characteristic type. I am perfectly satisfied that this characteristic type in long periods of time changes under the influences (I have endeavored partly to describe) to various dissimilar types so unlike in character that no Botanist could dare to class them under the same species; but only those sustained by long continued favorable conditions, can produce an apparently fixed type. We would not be willing in these calculations to compute time by historical record.

To offer an explanation to the paragraph, contained in Mr. Woodley's article on "Sporting in fruits and flowers," upon which the whole article hinges. He says, "Nay, we see two extraordinary phenomena in this case,—the bud propagating its kind yet differing in its product from its own seed." Now if we view the seed as a directive agency only, in building up a fabric of a characteristic type, and not as a directive agency in the production of seed,—which it certainly is not—for the seed is the result of forces acting through and upon an already perfected organization independent of that directive agency, which gave the tree its characteristic stamp. A tree may and does stand perfected in organization without the act of generation. Thus the bud is a mere continuation of the directive agency: laboring to perfect the characteristic type, which under ordinary circumstances ought to continue the same; yet there may be conditions so powerful as to produce a graft hybrid. I never had the good fortune to see one.

The vital activity of the tree is shown forth in the provision made for the perpetuation of its race, by the production of the germs of new individuals. This act of generation unmistakably exhibits the introduction of a new force, assuming a directive agency, apparently antagonistic to the older one; for whilst a higher temperature is usually required for the development of the flower and the maturation of the seed, than that required to sustain vegetable growth, the generative act is capable of destroying the tree. This then is a foreign element cast into the line of descent, leaving its impress and giving a new directive agency, based upon conditions differing from those of the germs immediate ancestral. The disturbances must for ever continue under the theory of molecular motion of matter, and until our friends can control this force we must submit to variation.

NOTES FROM H. W. SARGENT, ESQ

WODENETHE, FISHKILL ON THE HUDSON, N. Y.

We give the following extract from a letter of Mr. Sargent:—"After two years of traveling all over the Christian world, I have come to certain conclusions:

1st. That all good American lawns are infinitely better than the best English, which are a mass of daisies and weeds.

2d. That America is the worst fruit-growing country in the world, except the North of Europe. What, with the Apple and Peach borer, the codlin moth, the yellows, the fire blight, the curled-leaf, the thrip and mealy bug, and red spider in houses, and our variable winters, in this neighborhood, at any rate, we fruit growers are really in extremes. Plums, Nectarines, Apricots, and I may say Peaches and Gooseberries, are, probably, entirely unknown to children of 10 years of age, though 15 years since I grew them most successfully.

I found hardly a leaf on my Pear trees on my arrival, 10 days since, and of course the Pears are not worth picking.

I have no apples now. In England, this fruit may lack some flavor, yet on espaliers and certainly on walls, you may grow, and they do, every thing. An early spring frost sometimes injures a crop; but if the fruit works through this, their only other enemy is the wasp, and sometimes the sparrow,—which a net will keep from the fruit.

3d. There are much fewer ornamental plants, (Shrubs and Trees,) in the English places than in ours.

The Cedar of Lebanon and Deodar do magnificently, especially the former. The latter, all over England, suffered greatly last winter, and most of the Araucarias were destroyed. The great specimen at Kew, the largest and oldest in England, has merely a few living branches on the top. Wellingtonias do as *well* here, at least with me, as in England. Pinus excelsa, nivea, Beardsleyi, ponderosa, &c., and all the new Silver Firs, amabilis, grandis, nobilis, lasciocarpa, &c., *do better*. All the new Japanese Evergreens are larger and finer on my place and Wellesley, (H. H. Hunnewell's) than I ever saw abroad.

By allowing my lawn to grow up for 2 years, I have completely conquered the Summer or Crab grass, by smothering it during its season from July to 15th of September.

In answer to one of your correspondents—no evergreen hedge, except Holly, will turn cattle. They always destroy the face by rubbing or scratching with their heads.

GRAPE NOTES FROM THE PARSONAGE.

BY W. H. W., READING, MASS.

The past season, in New England, has been, to the Grape crop, one of the most severely trying that has been experienced for many years. Such excessive rains as we have had, have brought rot and mildew into a most unwelcome familiarity with many to whom they have hitherto been comparative strangers. In my own garden, I have never before, in eight years, seen a vine in the least injured by mildew. But this year there were very few that were not more or less affected, while many were almost entirely stripped of their foliage. As it may be of some interest and benefit to others, I propose to give a few notes in regard to the behavior of the different varieties under cultivation.

1. *Delaware.* On vines but slightly manured, there was much mildew. So many leaves lost that the fruit could not ripen. But on one vine heavily manured with new dung, there was a most vigorous and healthy growth; *no mildew*, fruit very large and thoroughly ripened, for which the premium was awarded at the Massachusetts Horticultural Exhibition.

2. *Diana.* Considerable mildew. Fruit rotted and dropped badly, still much of it ripened up at last very finely.

3. *Iona.* This variety has won golden opinions in our neighborhood this season. All my vines have appeared very healthy, a little touch of mildew here and there, but hardly enough to kill a single leaf. The bunch and berry are simply magnificent, whether as a feast to the eye or the palate. My old vine (four years planted) began to color its fruit before the Delaware at its side. I have much more hope of its adaptation to our climate than before.

4. *Rogers' No.* 15. The fruit of this variety rotted more than any other in the garden. It is a most rampant grower, but how Mr. R. can consider it the best of his hybrids (except Salem) I am at a loss to understand. "De gustibus, &c."

5. *Israella.* Good grower, quite healthy, not enough mildew to do any harm. Vines not yet old enough to bear.

6. *Allen's Hybrid.* Trained against a fence, with nine or ten inches interval, this variety was almost ruined by thrip and mildew; but on the open ground it appeared tolerably healthy. Had some fine fruit from a young vine ten feet south of the house, but not a berry from the *old* vine 9 inches east of a seven feet, tight fence.

7. *Union Village.* On the *upright* portion of the trellis scarcely any mildew at all: but on the *horizontal* portion, (it slopes for ten feet up to the house), almost every leaf was destroyed. A fine show of fruit, but none of it ripened. Probably too late for our latitude.

8. *Concord.* Considerable mildew; fruit poor and small. Western exposure.

9. *Rebecca.* One of the strongest growers in my grounds—almost impossible to control it. But it is a shy bearer. It atones, however, by the *quality* of its fruit, for the deficiency in quantity. This year no mildew at all, and some splendid clusters. Eastern exposure, 1½ feet from house.

10. *Hartford Prolific.* Entirely healthy, but its fruit much later than usually in ripening. Western exposure, 1½ feet from house.

11. *Rogers' No.* 19. No mildew in sufficient quantity to do serious harm. Strong grower, enormous fruit, much better than Concord. Growing in favor from year to year. Fruit ripened well, in open ground, and Western exposure near the house.

12. *Adirondac.* I don't know why, but can do nothing with it. I can't coax one to grow so as to maintain its visibility. I have several vines, three years planted, but only one large enough, *possibly*, to bear one or two bunches next year. Mildewed very badly this year and shed nearly all its leaves.

13. *Rogers' No.* 3. Fine, vigorous grower, but mildewed badly, and shed nearly all its leaves. Berry large, bunch medium, but as the fruit did not ripen I can say nothing of its quality. Some small vines resisted mildew almost perfectly, holding all their foliage till frost.

14. *Rogers' No.* 30. Nearly free from mildew. Not so vigorous a grower as most of Rogers' Hybrids. Vine too young to fruit. Set last spring.

15. *Rogers' No.* 41. Some mildew, but not enough to do any injury. Good grower, but not rampant. Vine set last spring. Wood very short-jointed. Vine looks very promising. Mr. R. considers this number equal to any of his black grapes.

16. *Rogers' No.* 44. Very healthy, no mildew; very vigorous. Vine too young to bear. Set last spring.

17. *Rogers' No.* 22. Slightly affected by mildew; strong, healthy grower. The same as Salem, without any doubt.

18. *Salem.* These vines were received directly from Mr. Rogers. They have made a fine growth, and shown no mildew. So far as the vine is concerned they appear very promising.

19. *Arnold's Hybrid No.* 1. A hybrid between Black Hamburg and a vine much resembling Clinton, raised by Mr. Charles Arnold, Paris, C. W. A good grower, most beautiful leaf, entirely free from mildew. Wood firm and short jointed. I have not yet fruited it, but some fruit received, this fall, from Mr. A. (which he states, however, to be very much below its usual quality) reminds me of the Clinton, though considerably better than that. The bunches are said to be enormous. I will report further on this and others of Mr. A.'s hybrids next fall.

20. *Arnold's Hybrid, No.* 2. *Perfectly* healthy, strong grower, vine looks very well. Fruit (received from Mr. A.) spicy, tender, good, somewhat like Clinton, but very much better. Hybrid between Clinton and Black St. Peters.

21. *Arnold's Hybrid, No.* 5. This is a "white" grape—a cross between Clinton and Golden Chasselas. It is a *very superior* fruit, as tender as Rebecca or Allen; and with very much more life and character than either. If it proves entirely hardy and sufficiently early for our New England climate, it will be a great acquisition. I have not yet fruited it myself; my remarks upon its quality are based upon a sample sent me by Mr. A. My vine (set last spring) was a very feeble one, so that I had some fears of its not surviving its removal from Canada. But it lived and grew between two and three feet. Wood very short-jointed. Vine slender and feeble. Considerable mildew, so that many leaves were lost. But, perhaps, I ought not to say anything about such a feeble plant, lest I do injustice to the character of the variety. A stronger plant might have dictated a very different report.

22. *Arnold's Hybrid, No.* 16. A cross between Clinton and Black St. Peters, like No. 2. It is a good sized grape, without pulp, and of a fine flavor. It is *very* promising. Vine *entirely* healthy, strong grower. In quality the fruit is nearly equal to No. 5.

23. *Saratoga.* Good, vigorous growth; some appearance of mildew, but not enough to injure the vine or cast the leaves. Vine too young for fruit.

24. *Creveling.* Mildewed *very* badly, shed nearly all its leaves. Poor bearer, but good, strong grower. Eastern exposure near a tight fence.

25. *Miles.* This year this variety has, for the first time, made a very vigorous growth. It was badly mildewed—one of the worst in the garden. No fruit, but a good promise for next year, as the wood has ripened well, and buds are plump and large.

26. *Cuyahoga.* Utterly worthless; shall dig it up and throw it away. It sets a *very* few grapes, not one of which ever ripens in my grounds.

27. *Rogers' No.* 1. Most enormous grower; scarcely any mildew. Fruit quite large and very showy, but too late for our climate.

28. *Diana Hamburg.* Very slow and feeble grower. Though manured and petted in every way I could not coax it into a growth of more than 18 inches. It seemed very fond of mildew, and mildew seemed to reciprocate the attachment. The consequence will probaby be a dead vine before spring.

29. *Main's Seedling* is simply another name for Concord.

30. *Lydia.* Some five or six years since I bought a vine by this name of W. R. Prince, of Flushing, which, after three years careful pruning and training, yielded 3 or 4 bunches of as villainous, rubber hided grapes as ever stirred one's righteous indignation. Last spring I set another, which I obtained from a reliable source. It has grown rather feebly and shown considerable mildew.

31. *Woodward* Perfectly healthy, showing not a trace of mildew. Good, fair grower. Eastern exposure. Vine too young for fruit.

32. *Ives.* Strong, healthy grower. No vine in the garden more entirely free from every appearance of disease.

I should say, in conclusion, that no sulphur or any other remedy for mildew was employed. I wished to test the hardiness of each variety, and learn its ability to withstand the alternations of our climate without such extraneous aid as most persons would not be likely to give.

The Gardener's Monthly.

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☞ All Communications for the Editor should be addressed, "THOMAS MEEHAN, Germantown, Philadelphia," and Business Letters directed to "W. G. P. BRINCKLOE, Box Philadelphia."

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CURIOUS EFFECT OF SUMMER PRUNING GRAPES.

The *London Gardener's Chronicle*, in a recent article on "pruning the grape," states that vines in vineries, pruned in September, while the leaves are on, will have the succeeding crop ripen fifteen to twenty days earlier than other vines pruned in November, all other circumstances being equal. "The experiment has been tried for years on vines that yield a supply of fruit from June until January, and whether in the early or in the late houses, the result is the same."

It is very curious to note how often practice is a long way ahead of science. Some 20 to 30 years ago, it was customary with good English gardeners to mow off the leaves of their strawberry beds towards the end of summer. The *Gardener's Chronicle* strongly opposed the practice, and showed conclusively from "science" that it was a barbarous thing, and should be discontinued. The writer of this was convinced by the arguments of the *Chronicle*, and argued for the retention of the leaves to the latest moment. But our American experience taught us that there were times when, in spite of the supposed laws of vegetable physiology, mowing off the leaves of the strawberry before they matured, was of immense benefit to the strawberry crop. The readers of our earlier volumes will remember this question being fully discussed at that time.

Another recent case is in reference to the tendrils of the grape vine. An old practice was to cut these off from some supposed benefit to the vine. Modern enlightened gardening abandoned the practice, as "without reason," yet Mr. Meehan's paper on the nutrition of motion in tendrils, in the Proceedings of the Academy of Natural Sciences, shows the practice to be a very philosophical one.

We think this curious result of early pruning another illustration and may be accounted for on the same principle that we brought forward at the time referred to, to account for the benefit in some cases, of early mowing off strawberry leaves. It is this:—There is a degree of antagonism between the fruit producing and the leaf producing systems of a plant.—All the parts of fructification are but metamorphosed leaves, and some check to the full development of leaves is necessary before the fruit producing system has its birth. A luxuriant growing tree does not bear well. If it receive an injury to its roots or leaves it is thrown into bearing,—and hence arises the axiom that "a tree makes an effort to reproduce itself in proportion to the danger of losing its life." It is so with a strawberry. If a shy bearer, which runs to leaf, is mowed back while the leaf is still green, it bears more fruit the next season, but the growth is not so strong. The fruit is increased by the check to the foliage.

Applied to the grape vine question before us, early pruning, no doubt checks the vigor of the vine,—the result of which is as we have seen, to induce *early fruitfulness*. One may object that by early fruitfulness is meant shortening the seasons, before bearing time, and not any reference to earliness in the same season; but there can be no doubt, that the same tendency which hastens maturity in a young plant, will hasten maturity during the bearing season, and this is confirmed by the well known fact that Mr. Felton often has exhibited Isabella grapes before the Pennsylvania Horticultural Society of wonderful *earliness*, produced by "ringing." We have, however, to thank the case *Gardener's Chronicle* for bringing out the so pointedly.

The fact has a particular value to the American grape grower from the circumstance that a few days of earliness is of immense importance to him, not only in getting his grapes to market, but in getting grapes in localities where the season is too short to ripen some desirable kinds, or indeed any kinds at all. If early pruning is to hasten maturity in this way, there are very few localities in the Union where the delicious Maxatawney will be "too late" to be worth growing, and so of other things besides grapes.

Above all, the fact published by the *Chronicle* explains many enigmas in grape experiences. One man will say of one grape, that it ripens ten days before another kind; another writer, equally reliable "another" ripened with him equally as many days before the "one." No doubt this difference in the ripening of the same kind may be owing to different modes or times of pruning, or any other treatment that may affect the vigor of the vine.

We are sure when the matter is fully investigated there will be found many ways to accelerate

ripening of crops of which we have now no thought. In preparing a paper for the Agricultural department of *Forney's Weekly Press* a few weeks ago, before we had seen this article in the *Gardener's Chronicle*, the writer of this referred to the fact that where a manure heap had been in a wheat field, the wheat on that rich soil, did not mature for some days after the rest of the field was quite ripe.

The only purpose in that paper, was to show that where there is danger of disease attacking the wheat crop at a late period of the season of ripening, it was wisdom to sow thick to hasten maturity; but the fact has a greater value in this place as illustrating the importance of a great principle in its general application—namely, the principle that great vigor, which the extra manure gave the wheat, causes a later ripening than the same wheat under more impoverished circumstances.

American gardeners—at least the readers of the *Gardener's Monthly*—now receive amongst the recognized laws of gardening, that *Pruning is in all cases at the expense of vigorous vitality:* we think they may now add to this, that *one of the result of weakened vitality is a tendency to early bearing.*

PORTRAIT OF PROF. LINDLEY.

(*See Frontispiece.*)

Almost all our readers bind their annual volumes. As a reference, giving the history of Horticulture in the United States and containing a rich mine of valuable information, a set of the *Gardener's Monthly* is indispensable to the progressive Horticulturist. To bind up with the volume, which this number concludes, we present our subscribers a portrait of Prof. Lindley.

It is two years this past November since this distinguished Horticulturist died, but the effects of his writings and labors in behalf of the art will long exist, and for many years to come his portrait will possess an interest to all engaged in gardening.

We gave a full notice of him at the time of his decease, but we may here repeat that he was born near Norwich, England, in 1799, his father being a nurseryman there. His first work in 1819 was a translation of a French book on fruits. Loudon's Encyclopedia of plants, published in 1829, was in part the work of Lindley. In 1830 his natural system of Botany helped much to replace the Linnæan system by a better one; but his great work, the "Vegetable Kingdom," was a marvel of thoughtful labor. To the *Gardener's Chronicle*, however, he is chiefly indebted for his fame as a horticulturist. He was engaged as Editor of this in 1841, and he conducted it with marked ability till his death.

NOTES OF WESTERN TRAVEL.

Our last chapter dropped us on the road to Hanford's Columbus Nursery. It is situated on a high but level tract of land, about three quarter of a mile out of town, and lets you know you are approaching it by a strong guard of Norway Spruce, "presenting arms" in beautiful style, and challenging your admiration. These extend along the northern boundary for about a quarter of a mile, are about 25 feet high, and we suppose about 20 feet apart. They give much to the warmth and shelter of the nursery, and thus add a money value to the business, as well as a lasting improvement to the real estate. Around the nursery is an Osage Orange hedge, very well managed, forming a perfectly protective guard. The Norway Spruces are planted about 15 feet from the hedge, and thus a beautiful drive is formed all around the nursery, with a hedge screen on one side and the beautiful trees on the other.

The nurseries occupy about 100 acres, and were founded by Mr. Bateham some eighteen or twenty year ago, subsequently Messrs. Ellwanger & Barry acquired an interest in the business, which was about eight years ago purchased by Hanford Bros. Bateham, Hanford & Co., was afterwards replaced by the Hanfords alone, and one of them dying soon afterwards, the present proprietor has the few past years had to carry on the affairs alone. With so many and so recent changes, we could scarcely expect to see the same heavy business and systematic arrangements which should result from long experience, and sometimes do; but we were much pleased to find an establishment which would do no discredit to prominent eastern localities, notwithstanding the frequent apologies of the estimable proprietor, that his place was not up to the style of "you eastern men."

The leading stock grown here, as in most western nurseries, is the apple, of these there were several acres of two year olds in prime condition, and as many more of one year olds coming on. Next in importance seemed to be the peach and cherry—all seeming to pay as nursery crops in this latitude.

Ornamental trees of any size did not appear to be in much demand; but by the large stock of young ones set out, we judged Mr. Hanford foresaw the coming necessity which farmers must soon feel for them. The name "ornamental" has been an injury to the nation. Farmers feel—in many cases

justly feel—that they have no capital to spare for mere ornament. But shelter, warmth and protection have a money value, and while adorning, trees do all these things and more. The English term "Forest trees" reads much better in catalogues than the mere "ornamental" does.

There is no lack of interest in the Rose, however, in the West, and these were being extensively and successfully raised by green cuttings, struck in close frames in the open air, and well but not stiflingly shaded. Altogether Mr. Hanford seems to feel encouraged to do a little in the pure ornamental line. His greenhouse establishment is entirely a child of modern growth. It now comprises several houses, and he proposes to increase them. The Capital of the State, with perhaps 40 000 inhabitants, and no florists, greenhouses or establishments for cut flowers exist, is remarkable in a place like Columbus. Too many florists "wait for the demand," but Mr. Hanford recognizes the great principle of success, which all successful nurserymen have had of find, that "to make money in the nursery trade, one has to make his own customers." He has to be both a teacher and a tradesman. A man who "knows enough" and who lends no hand to circulate horticultural magazines, because they "let the public know too much," usually has to depend on the charity of friends for decent burial after death. Mr. Hanford has our best wishes in his attempt to create a horticultural taste amongst the Columbusians, and for the encouragement of our friend, we may say that a good wish of the *Monthly* is generally not only 'father to the thought,' but to the deed also.

Not expecting to stay long at Columbus, we expected to slip through "unbeknowns" to our numerous amateur friends who reside about there; but the sickness of a traveling friend delayed us beyond our project, and we were suprised on several occasions of what is considered a "mean thing" in an Editor, going by the house of a reader without "calling in." If we had expected to have staid beyond a few hours, we should have arranged a list before starting, and hereby beg our friends excuse who were neglected.

We took time, however, to go out to Mr. Mannings, whose notes of rare evergreens and fruits have frequently interested our readers. Mr. Manning is engaged in mechanical pursuits, but has a beautiful spot for his home, which he seeks to render still more attractive by surrounding it with all the rare and beautiful trees that will endure the winter with him. This year affords a new experience, for the summer has been so dry that many things have been lost by the drought, that have heretofore withstood the severest winter seasons. Amongst his collections were some of which we had never seen finer. A Cupressus Lawsoniana about 12 feet was good. This species appears as it gets age to resemble very much in habit some of our graceful forms of Red Cedar. A Deutzia crenata pleno, about two feet high and as much thick, showed that it was of a much prettier habit than the D. scabra, and with the flowers so much more beautiful than any, it must be a very handsome thing.

Amongst the saddest things in our experience is to find a hard working man, limited in means and rich only in enthusiasm, imposed on by the ignorance or rascality of dealers. Here we found our friend glorying in his his splendid specimen of *Pinus excelsa*, which was only a very good specimen of the common White Pine. So long had he feasted on the cherished idea of possessing a treasure, that we were almost tempted to let him go on, not caring to be the means of pain to him by demolishing his idol; but botanical truth is a heartless iconoclast, and we had to do it, mentally resolving, however, to present him with a few seeds of the real kinds as soon as our ship comes in, as our pennance for the sin of telling him the truth.

Mr. Manning is as zealous in the cause of fruits as of plants and flowers. Here we had the pleasure of tasting for the first time out of Boston, the Clapp's Favorite Pear. It was a very good article, though not up to the mark as we had seen it in Boston, nor was it of quite as good quality as we have eaten it before.

This part of Ohio is very beautiful, well timbered and we should judge in ordinary seasons, *well watered* for the road sides were frequently ploughed into channels ten feet deep, the soil being of a light sandy nature. We found, however, the same complaint here as elsewhere West, that the land was "declining in productiveness," and yet they seemed to think as a general thing with so much new land to be had that "manuring did not pay the labor."

Scraps and Queries.

☞Communications for this department must reach the Editor on or before the 10th of the month.

☞The Editor cannot answer letters for this department privately.

Mr. Griffith's Grape Patent—*J. W. B. Plattsburg*, says:—"Will you allow me to say a few words on the article in your last number, en

titled '*A New Grape Patent*,' by Wm. Griffith.

"I have read his description of this new discovered process, and I wish to say that I have grown vines successfully in the same manner for four years; we used spent tan, sawdust and charcoal dust for mulching, with about equal success. I do not, however, propose to apply for a patent, but I do purpose to continue propagating on this plan as long as I find it to my interest to do so."

[Of course you can continue your process. As we said in our last, it is barely possible that Mr. Griffith was serious. It is simply a good advertising joke, and friend Griffith deserves much credit for his ingenuity.]

Asparagus Beds.—A Doylestown, Pa., subscriber sends us the following minute statements of the way in which he made his Asparagus beds. If he does not get good Asparagus, old "Hortus" must be a mean deity not to smile on such a sacrifice. He says:

I have been trying to make me an Asparagus bed, and I often wished, while working at it, that I had a good article from your pen aside to direct me; but I put it through "hit or miss." I know you will laugh when I tell you how I made it. In the first place, I had neither *stones*, bones nor leather, but I had as follows: for every 3 feet of a 90-feet bed, and 10 feet wide. I first cleaned out 3 feet, 18 in. deep, across the bed, say 10 feet wide, and throw it to one side. (I had the soil well pulverized.) Into this trench I put

1st, 1 bundle corn fodder,
2d, ½ of top soil of 3 feet,
3d, 1 barrow load manure,
4th, ½ top soil of the 3 feet,
5th, 1 barrow load short manure,
6th Shovelings of top soil,
7th, 1 barrow load of short manure,
8th, ½ of subsoil,
9th, 1 barrow load of short manure,
10th, ½ of subsoil,
11th, A good coat of compost, which I had left from corn planting, worked in on top.

Will you be so kind as to tell me, at your convenience, if you would recommend me to sow seed now or wait until spring, and then set out the plants. If seed, how shall I sow it? If plants, how shall I plant them, and how far apart both ways? If you recommend sowing the seed now, would the bed require to be mulched, and with what?"

We should plant out 2 year old plants in spring. They ought to bear cuttings then the spring following.

The Modern Chameleon.—It is time some conclusion is reached as to the meaning of the very conflicting statements about Tomatoes. We have already settled the question of *earliness*. Soil, situation, time of planting, and many other circumstances, have more to do with this than we knew of a year ago. It is clear that so far as any *constitutional* earliness is concerned, no variety has yet appeared that has much advantage over another.

Another fact is equally clear, namely, that the tomato is extremely variable. Circumstances have more to do with quality than constitution, and that it is next to impossible to keep a variety true to its characteristics.

Notwithstanding these things are plain, from what has appeared in the *Monthly* the past year, to every mind capable of generalizing from undoubted facts, there will no doubt be the same quarrels gone over next year as in the past. This one will be called a swindler for sending out bad seed, and the other of deliberately perverting the facts to gain certain ends, until the looker-on must think that, amongst horticulturists, his cornutely crowned majesty is even blacker than he has ever been painted.

Southern Nurserymen.—*W. S. R., Columbia, Tenn.*, says: I wish to buy sundry stocks for my Nursery, and would like to buy them from Southern Nurseries, from the fact that stocks bought from the North or Northwest do not do so well here. I have looked through your Advertiser, and do not find a solitary Southern Nursery advertised, not even one from Kentucky. How is this? Can you furnish me with a list of Kentucky and Southern Nurseries?

[Probably they have not yet stock to offer. There are, in Kentucky, J. O. J. Taylor, Newport; J. S. Downer, Elkton; Manson & Willey, Murfreesboro; J. S. Dunlap, Pulaski; J. R. Strange, Madison, and others at Bowling Green, Hopkinsville, Winchester, Calhoun, and many other places. If our friends will send us a full list of Kentucky Nurserymen, we would publish them, or of any of the Southern States.]

A Good Exhibitor.—In order to render our reports of Societies of interest to all our readers, we seldom refer to premiums taken unless we can give a list of the articles, which is the chief thing the readers like to know. For the same reason, we generally only record *first* premiums. This rule works hard, sometimes, against meritorious exhibitors. For instance, the name of Donald McQueen, gardener to Joshua Longstreth, does not appear

often in our report of the Pennsylvania Horticultural Society's Exhibition, yet he was one of the best contributors, gained 12 premiums, of more money value than any other exhibitor obtained.

BEDDING GERANIUMS.—A correspondent, *P. C.*, of *Sharon, Pa.*, says; In the list of good bedding Geraniums, given by J. M., the "King of Scarlets', is not mentioned, but which he thinks one of the very best.

INSECTS ON EGG PLANTS.—*P. C., Sharon, Pa.*, says: In reference to the use of oil by our Cleveland correspondent, he keeps his free from insects by planting in a cold frame about the middle of April. If any insects show signs of appearing, he puts on the lights. He always waters with clean water overhead, believing manure waters do injury to the leaves. He has seen bad results follow such use of waste wash water or soap suds. When he uses such liquids he uses a pot without a rose, pouring it in to the roots under the foliage. He thus gets healthy plants, and the fruit is early. Last year he had them the first week in July. It is a little trouble, but where a few first rate early ones are wanted, and free from insects, he thinks it well worth the little labor it costs.

GARDENING IN THE SOUTH.—Our excellent correspondent, Mr. Walter Elder, proposes to lay out or improve gardens in the South, from November to the first of April. His address is 1231 Rodman St., where letters from any one desiring his services will find him.

LILIES AND PHLOXES.—*Mrs. J. L., Abington, Mass.*, writes: I have just read with much pleasure your article on Lilies. Can not the writer give a more minute description, especially of the dwarf varieties? The article in the September number on Phloxes, was just what I had been wishing for, as I had a few choice varieties of August cuttings that I was undecided regarding their winter treatment.

[We have several readers who are paying especial attention to Lilies, and we should be obliged by their notes.]

NAME OF PLANT.—*Mrs. J. L., Abington, Mass.*—Appears to be *Gentiana Ochroleuca*, but we believe it has not been found wild North of Pennsylvania.

RATS.—A *Chillicothe, O.*, correspondent says: A box with a board jetting in from the top about 4 inches all round, like a shelf, will prevent rats from getting in. They are thoughtful enough to see that they could not get out. The box must be large, or at least deep.

WAITING FOR FROST.—A nursery friend, writing from Georgia, Oct. 28th, says: "We have, at last, a good soaking rain. This is the first wetting for six weeks. I have been compelled to delay sending off any plants on account of this unusual late drought, and have much back work to do. Not having shipped anything as yet, returns are not coming in. To-day, however, we commence operations on such matters as Strawberry plants and Evergreens. It will be a week yet before we can dig fruit trees, as there has been no frost, and I do not expect any till about the 5th to 10th of Nov."

In the North, we think most nurserymen have learned that it is much better to dig before frost than after.

HARDINESS OF LILIUM GIGANTEUM.—One of our Lily-loving correspondents, *Col. J. D. Kurtz*, 6 *Winder's Building, Washington, D. C.*, confirms our recently expressed opinion, that this Lily, from the place where it is found wild, ought to be hardy. He says it has lived out-doors a winter with him. Our Carlsruhe correspondent says it is hardy also at Nice.

Col. Kurtz is anxious to get a few roots of all our American Lilies, except *Superbum*. He would exchange for them

Thumbergianum aurantiacum,	T. puniceum,
" atrosanguineum,	T. tenuifolium.
" carniolicum,	

and perhaps a few others.

UMBERHAUR'S PATENT PLANT CASE for mailing. A specimen sent us by W. A. Fraker. It is made of tin, very light, and just the thing for plants, grafts, &c. There have been many difficulties in the working of the law for sending these things by mail. They must be so fixed that the "Postmaster can see the contents without destroying the package." This cannot, at times, be done with safety to the contents. This package admits the postmaster's eye, and yet properly protects.

AUTOMATON GATE.—*E. C. Bates, Jr., Boston*, writes:—I see by your magazine that a gentleman wishes an automaton gate. I think I can furnish him with such if he will give me a chance. The notice of which I speak is on page 339 of your November number. Please address E. C. BATES, JR. care E. C. Bates, Esq., Boston, Mass.

PROPAGATING ORIENTAL POPPY.—*J. B., Battle Creek, Mich.* "We have never yet had the good luck to make the seeds of the Oriental Poppy vegetate; and as it is a beautiful flower plant, we would like to know how to increase it."

[The beautiful *Papaver orientale* is easily raised by cuttings of the root. We cannot understand why the seeds should not grow. We have some recollection of having seen, in years past, an account of some very curious forms of this plant—so different as to be entitled to rank as distinct species, and that these forms are unfertile. We are not sure of this, and if any one can refer us to any such a case, we shall be glad. If, however, this is true, there may be some peculiarity about the plant itself, which would lead to sterile seeds.]

Books, Catalogues, &c.

The American Journal of Horticulture.—As our readers know, the new year brought a new contemporary into the family, who signaled its entrance into the world by a most pugnacious entertainment. It was not going to be like the *Gardener's Monthly*,—whose editor is a nurseryman, and whose publisher sells horticultural books,—"connected with any horticultural establishment." There had not been any "high-toned" intelligent journals, and it was "a-going to supply that want." Then it was to give double the amount of reading for three dollars that others did for two; and many other things of which we need not here tell.

With such a tremendous kick in the back, we had to look behind to see what was the matter. We found the youngster with its chief editors or contributors as much connected with horticultural establishments as we were,—we found its publisher selling horticultural books to even a greater extent than ours,—the "high-toned" character has been shown by the *Nation* to consist in copying wholesale from other sources without credit,—"double the amount" of reading matter simmered down to about the same amount spread over double the number of smaller pages; and its "intelligence has shown itself in the most ludicrous errors in every number issued.

We hoped at the end of its first year it would grow out of its infantile ways,—but we see its chief nurse deems it necessary that it should wear its peculiar baby clothing yet a little longer. He tells us in this number that there is *now* a "first-class horticultural magazine, though it has been denied that one could be sustained;" and he has also discovered that this "first-class one has "more circulation than all the rest put together." Verily, there is no stagnation in the air of Boston. There *is* circulation in it, judging by this first-class specimen of blowing.

We are sorry that a paper we would gladly hail as a co-laborer, should think it necessary to its own prosperity to make ugly faces at its neighbors. By puffing out its cheeks in this inordinate way, we fancy it hurts itself more than us. In fact we rather enjoy it. Our sorrow is for its *very* "high-tone."

Aside from these weaknesses of childhood. The *American Journal* has many points of interest which always makes it welcome on our book-table. The present number has two very good ideas. W. C. Flagg shows how much better it would be for many poor women to go into small fruit raising,—and Burgess Truesdell makes a good point in favor of the culture, as an ornamental tree, of the *Rhus typhina*, the stag-horn sumach,—one of the most beautiful of our neglected trees.

The Grape Vine. A practically scientific treatise on its management, &c. By Frederick Mohr. Translated from the German by Horticola. New York: Orange Judd & Co.

"Another Grape book!" "How many more?" This at any rate, good reader, you will not find one too many. For our part we have profited by its perusal, and have taken time since its publication to digest well the Author's points.

We have thought that the best European writers did not understand the vine so well as it is understood in the United States, and we have frequently expressed this opinion to our readers. Certainly the English and French have not produced any thing of credit to the advanced state of either practical culture or physiological research. Mohr's is the first European work we think up to the American standard. Perhaps we may be somewhat biased in its favor by finding views which the writer has contended for so long, and which have only slowly received the assent of his contemporary Horticulturists, ably elucidated in the work before us. For instance it is now fifteen years since we took a stand against the notion that bleeding was an injury to the grape vine. We were attacked somewhat bitterly by American journals at the time,—but Mohr shows by an interesting experiment which he details, that this is undoubtedly the fact. The vine in bleeding "seems simply to" indulge an unnatural satisfaction of seeing how high it can raise its sap."

Again, we have taught that the roots of a vine never extends beyond the distance its branches are allowed to go—that when we cut away the vine the roots die away in proportion,—that consequently new roots have to push out and go over ground previously exhausted by roots before,—and that the result is a severely pruned vine has all the circumstances favorable to exhaustion continually about it, and must die in time. Mohr says enough to show that this is true, although he has not got far enough to see the full force of the idea as we have often stated it, and now briefly repeat it here. He also shows what every intelligent American grape-grower knows,—but which De Breuil does not know, as we have recently seen, that it is not sun light which ripens grapes, but *healthy leaves*,—and further, he shows how easily the fibres of the

grape vine are injured by the abuse of liquids, and how diseases come to the grape vine more invitingly this way than any other, a position we have often, and particularly in our last November number, taken pains to show,—these and many other ideas which we find here, *corroborative* of views now advancing amongst our readers, cannot but commend itself to our esteem.

Besides these there are many original facts and ideas given which have not appeared in any work on American grape growing, some of which when applied to American circumstances may or may not be found of value, but which the importance of the subject will render more worthy of our attention.

The translator, well known to our readers as "Horticola," (Dr. Siedhoff,) has rendered the work of still more value by giving in an appendix a chapter on the practical treatment of the grape from his experience as an American grape-grower. We have had several inquiries for the book from our German friends,—and now it is in English, and published at a low price, it will, no doubt, be universally read by all who love the grape.

New and Rare Plants.

Trichinium Manglesii.—Mr. William Bull is sending out the above interesting plant, introduced from Swan River, by Mr. W. Thompson, of Ipswich, and for which two first class certificates were awarded in the spring of 1865.

It is a greenhouse Perennial (belonging to the Amarantads), growing from a foot to a foot and a half in height: somewhat fleshy, spreading; entire foliage varying in form from lanceolate to spathulate, and arranged in a radical tuft, from which arise several branched stems, each of which usually bears two or three flower spikes. These are of an elongated form, and composed of closely arranged florets of a pleasing rosy-amaranth color, and which, except at their tips, are clothed with long white hairs, the contrast of which with the protruding red petal-like segments produce a singular and striking effect.

These flower heads, if cut before they are too far advanced, may be preserved for some weeks, and possess in fact the rigid texture of the "Everlastings."

Among greenhouse plants the Trichinium Manglesii is altogether unique, and is one of the first to catch the eye in a miscellaneous collection. It blooms during the summer and autumn months, and lasts a long time in flower.

It has been figured in the following works: *Botanical Magazine*, *Florist* and *Illustration Horticole;* but is one of those plants to which it is impossible for the most skilful pencil to do justice.

Ixora princeps.—This handsome Ixora is from Java, the native home of many other fine species.

The foliage differs in being of a much stronger texture, and is from 6 to 7 inches long and 2 inches wide, slightly undulated on the margin, and intermediate between that of I. Griffithii and I. aurantiaca. The flowers are borne in the greatest profusion, opening of a soft buff and changing to a deep reddish orange, longer in the tube than most others. For exhibition purposes it will prove to be a plant of first-class excellence, and while some of the recently introduced stove plants are not likely to be permanently cultivated, a good Ixora is always beautiful.

Hypericum salicifolium.—Is a compact-growing, free-blooming Evergreen shrub, recently imported from Shanghi, and very suitable for the conservatory or greenhouse, the golden cup-like flowers being very effective. The leaves are from 3 to 4 inches long, by 1 inch broad, entire and smooth on their margins, and thickly set on the stems, which are red. The flowers are of a golden yellow, about 2 inches over, and produced in terminal bunches on every shoot, during the summer months. Good yellow flowering plants not being over numerous for conservatory decoration, the above is a welcome addition to this class of plants.

Achimenes Gibsoni—Is a fine and distinct hybrid, raised by Rollisson. The flowers are of a lovely mauve, fringed on the margins of the petals in the way of the old "Multiflora," and tube white outside and stained with light lavender blue towards the base; the inside is white, beautifully speckled with light blue and yellow, and about 1½ inch long, and the face of the flower about 2 inches over.

The foliage is ovate-lanceolate, 1½ inch across, by 4 inches long, olive-green, with the ribs of a dark red, robust in habit, and a profuse bloomer.

Cereus crenatus sanguineus.—This superb hybrid was raised from the C. crenatus fertilized with the C. speciosissimus, by a cultivator of great experience in this showy class of plants. Most persons will remember the introduction of the C. crenatus with its long tubular creamy white flowers and flat stems, and as this possessed novelty of form, but was comparatively colorless, it was

thought that if the glowing colors of the C. speciosissimus could be imparted to it, a decided advantage would be gained for the present subject; the idea has been acted upon, and this splendid hybrid is the result. In its mode of growth and flowering the plant is like C. crenatus, but has the color of C. speciosissimus; the stems are broad, flat and spineless, the flower tubes 7 to 8 inches long and 5 inches across the mouth, and of a rich glowing crimson, producing, when in flower, a most gorgeous effect.

New Bedding Pelargonium, Artemus Ward.—A very effective variety for bedding; raised at the Tooting nursery. In some respects it resembles Luna, so much used at Battersea Park, but is far superior to it. The flowers are of a bright crimson, but as the plant is chiefly desirable for its conspicuous foliage, these are of secondary importance.—The leaves are broadly zoned with bright reddish brown and deep chocolate, and within the zone flaked with yellow and green, the outer margin being similarly colored. It produces a striking effect when looked upon in a mass, and is also equally well adapted for edgings; it also bears the sun well, and the more it is exposed the more intense the color.

Cattleya Warcewiczii—A beautiful cool-house Orchid, remarkable for the variety of color presented by different plants, and especially valuable as a winter-blooming species. The colors vary from pure white to deep rosy blush, and lip is richly stained with deep rosy-purple, finely contrasted with an orange colored blotch, and generally having a well-defined pale margin. Native of New Grenada, and now widely distributed amongst growers. —*Florist and Pomol.*

Cordyline Australis.—This is the Yucca-like narrow-leaved greenhouse shrub which was formerly called in garden C. indivisa, a name belonging to a broader-leaved yellow-vined plant. It grows from 12 to 20 feet high, has narrow ensiform leaves 2 to 3 feet long, and bears an erect and very much branched panicle of white blossoms, forming a dense head just emerging from among the leaves. Native of New Zealand. Flowered at Kew.—*Bot. Mag.*

Eucodonia nægelioides.—(Gesneraceæ.) A charming stove perennial herb, raised between Eucodonia Ehrenbergii and Nægelia zebrina splendens, to which the new and inadmissable name of Eucodonopsis has been given. It is a lovely plant, with broad ovate and hairy leaves, and large Gloxinia-like flowers of a fine rose, the under side of the tube being yellow, spotted with crimson, and the face of the limb marked with bars of deeper crimson. A Belgian hybrid, raised by M. Van Houtte.—*L' Hort. France.*

Domestic Intelligence.

Agricultural Papers in the West are flourishing. A recent No. of the *Farmer's Advertiser* says, Near the beginning of the year 1866, in order to afford a more ready means of answering numerous inquiries, it was determined to issue a monthly sheet, and it was called the *Farmer's Advertiser.* Before the end of the year 1866, this publication had attained such a circulation, and received such a degree of favor, that, in order to meet an evidently growing want of the times, it was determined to enlarge and convert it into a first class Agricultural paper. Dr. L. D. Morse was engaged to take editoral charge, and since the beginning of the present year it has been issued semi-monthly in its present sixteen page form, and has so far gained the good will and esteem of a vast portion of our country, as to place it upon sure foundation. Plans for its further improvment next year will be made public at an early date.

Timber and Fruits of Alabama.—Timber of great variety is abundant in the country; that in the river bottoms consists of the different kinds of oak, hickory, beach, ash, poplar and gum, with those kinds used by cabinet makers, such as walnut, cherry, birch and maple; on the uplands, oak, hickory and short leaf pine. From the custom of the Indians of burning the woods, annually, an undergrowth was prevented from springing up, but since civilization has taken the place of the Indians, a dense forest has appeared and regions before barren even of firewood is now abundantly supplied not only with this, but timber sufficient for farming purposes.

The peach, plum and fig are the only cultivated fruits that have the rich flavor of those of more northern latitudes. Apples, pears and cherries are not uncommon, though they do not grow to such perfection as the other fruits mentioned. Grapes, strawberries and raspberries, by proper cultivation, flourish in gardens. The black mulberry, in the first settlement of the county, was confined to the bottom lands of the creeks and rivers, but since the woods have been protected from the annual ravages of the fire, it is found in every forest. There are several varieties of cherry and plum, that grow

spontaneous; one of the former when eaten in any considerable quantity will produce an effect similar to Madeira or Port Wine.—*History of Antaugu Co., Ala.*

Foreign Intelligence.

Prunus Padus as a Stock for Peaches.—I lived when a boy in a district where the Bird Cherry (Prunus padus) abounded, and used to wonder why it was called a cherry, when it seemed to have no resemblance of any kind to a cherry, but in leaf and smell was not very unlike a peach. So, when eight years ago I settled in Yorkshire, and found the Bird Cherry again indigenous to my district, I thought it would be worth while trying it for a stock in order to find out its affinity, but it was not until last year and the present that I was able to put my wish into practice. Curiously enough, when, in the Autumn of 1865, I went to look for some young specimens of the Prunus fit for my purpose, all the peach trees in the district were smothered with a sudden blight of aphides, and on arriving at the glen where the Prunus was growing, I found the same aphis in the same abundance. This so far favored my old notion.

On removing the stocks, I planted some in the open ground, and some in pots. All, however, suffered a very severe check, and when I tried to bud them last autumn, the bark would not run, so that I set no value upon the results of last year. Those in pots were placed in gentle heat in February, along with an equal number of Black Damask plum stocks, and when the sap was fairly active all were grafted—the Prunus padus with plums, cherries, apricots and peaches. In some cases all four sorts were worked on the same stock, and the cherries were either May Duke or Morrello. The result was, that in almost every case the peaches grew on the Prunus padus, the cherries grew for a time, and then stopped, the others gave little hope of succeeding. Of those worked on the Black Damask plum about half succeeded. These were worked only with plum and peaches, and were used merely to compare the stocks under the same treatment, which was by no means the best for the purpose, as I had no proper material for plunging the plants after being grafted, and they were in consequence not plunged in any thing.

As soon as the growth of the scions and Prunus was sufficient to show which would thrive and which would not, they were cut down again and regrafted, putting cherries and plums on the stocks where the peach had succeeded, and peaches on those on which other fruits had failed. The only scions which grew after this severe treatment were the peaches, which again succeeded in almost every case. Few, however, are now growing, through their having been exposed to the frequent action of crinoline. One (Dr. Hogg) I was careful to keep securely, and it was regularly stopped, and finally repotted a month ago, and is now a very promising tree, with well-developed buds, having been allowed to attain a height of about 4 feet, and with laterals 1½ foot long at the bottom.

It now remains to be seen how far the Prunus padus, which elaborates so much prussic acid, will effect the flavor of the fruit. Next year will I hope, enable me to give an opinion upon this question that will be of value. My present belief is, that unless some amount of foliage is allowed to grow on the stock, the flavor of the fruit is only influenced so far as the growth of the scion is healthy or otherwise. I once by mistake grafted an apple on the quince, and the two trees so worked grew most vigorously for one season, and then became unhealthy. In one case I allowed the quince to put out about a dozen leaves below the scion, and the next season the apple so treated grew again, and the other died. It is most probable that in this case the sap sent from the quince roots was suited to the apple; but that the sap sent down from the apple leaves did not suit the root of the quince. This is, however, just one of those questions that require a careful set of experiments to furnish a correct answer.—W. Kingsley, in *English Journal of Horticulture.*

New Bedding Geraniums.—The English florists continue the improvement of this first-class American bedding plant, as the following list shows:

Banneret,—Flowers scarlet, crimson and purple-shaded, very bright and beautiful. A hybrid Nosegay.

Fairy Queen.—Rosy purple. A large smooth flower; very distinct and effective.

Minstrel.—A peculiar and pleasing shade of salmon. Something in the way of 'Lord Palmerston,' but brighter in color, and broader in the petals.

Monte Rosa.—Dark rosy purple—pleasing color; large truss. Very fine.

Nimrod.—Orange-scarlet, white eye; large flower and truss; foliage and habit fine.

Phœnix.—In the way of 'Stella,' in habit and general character; the color flammiferous scarlet.

Prince of Orange.—Orange scarlet, very bright, great substance; good habit; prodigious bloomer.

Peach Nosegay.—Flowers deep bright peach color. Very free bloomer, splendid truss, plain leaf. First-rate and distinct.

Rebecca.—Cherry color; fine truss; dwarf compact habit; very profuse. The finest bedding Geranium yet raised.

St. George.—Dark chestnut, shaded with blackish crimson. Quite unique; very free and effective. An entirely new color among Pelargoniums.

Salmon Nosegay.—Flowers pure salmon; large truss. Good.

Sir J. Paxton.—Flowers true orange, very bright; fine large truss. A splendid variety for massing.

Wood Nymph.—Salmon pink. Large and fine.

Changes of Sex in Flowers.—The change in sexual characteristics, which is manifested by the *formation of pollen within* the tissues of the *Ovule*, has not, to the best of my knowledge, been recorded in any other case than that of a Passion flower, observed by Mr. S. J. Salter, and described and figured by him in the Linnæan Transactions, (vol. xxiv., p. 143). To this we are now enabled to add a similar illustration in some flowers of a wild Rose (*Rosa arvensis*), recently gathered and examined by ourselves. In these flowers the calyx was normal, the petals reduced in size, with some tendency to become foliaceous; the carpels presented nothing unusual, but the stamens showed almost every possible degree of change between their ordinary condition, and that of carpels.

Perhaps the most common deformation was one in which what, under ordinary circumstances, would be the filament of the stamen, bore, in the centre, an anther; below that organ, two ovules, or unimpregnated seeds, like the natural ones, but wholly uncovered, while above the pollen sacs the filament was prolonged in the form of a long, often tortuous style, terminated by a trumpet shaped, fringed stigma.

So far, there was nothing but what may be seen very commonly in double or partially double flowers; but on examining some of the ovules, it was found that, while retaining the form and semblance of ovules, they had, nevertheless, assumed some of the characters of anthers. For instance, in many cases beneath the superficial layer of tissue there was a stratum of those spheroidal cells containing a network of thick fibres, such as we expect to see in an anther, but do not expect to meet with in an ovule. Moreover, there was a considerable quantity of well formed pollen in the substance of the ovule.

Reserving for another opportunity the full details of this extraordinary case of personation, we content ourselves, in this place, with recording the fact, and of drawing attention to the physiological interest attaching to it. We do not suppose that in this Rose the pollen would have any effect upon the ovule in which it was formed, because there were so far as we could see, no traces of embryo sac or germinal vesicle, but only a solid, cellular nucleus; on the other hand, supposing the pollen liberated in some way from the ovule in which it was formedl what is there to prevent its fertilizing the stigmas of adjacent carpels, or even the contiguous uncovered ovules, some of which were perfectly organized, though as far as we saw they were unimpregnated?—*Gard. Chron.*

Professor Faraday died recently, at Hampton Court, in his 73d year. He was born in 1794 in the parish of Newington Surrey, and, like many others who have illustrated the page of British history, was entirely a self-made man. His father was a smith, and he himself, after a very imperfect elementary education, was apprenticed to a bookbinder in Blandford Street. He was however, already inspired with the love of natural science.

His leisure was spent in making such chemical experiments as were within his means, and he ventured on the construction of an electrifying machine, thus foreshowing the particular sphere of his greatest future discoveries. He was eager to quit the trade for the humblest position as a student of physical science, and his tastes becoming known to a gentleman who lived in his master's neighborhood, he obtained for him in 1812 admission to the lectures which Sir Humphry Davy, then in the plenitude of his powers, was delivering at the Royal institution. Mr. Faraday not only attended the lectures, but took copious notes of them, which he carefully re-wrote and sent to Sir Humphry, begging his assistance in his desire "to escape from trade and to enter into the service of science." Sir Humphry promptly answered the appeal, and after warmly praising the powers shown in the notes of his lectures, expressed his hope that he might be able to meet the writer's wishes. Early in 1813 the opportunity came. The post of assistant in the Laboratory in Albemarle street became vacant, and Sir Humphry conferred it upon Mr. Faraday, and thus commenced the connection between Faraday and the Royal Institution which only terminated with his life. Shortly after his appointment he accompanied Sir Humphry Davy in a visit to France, Italy, Switzerland, &c., returning to his place in the Royal Institution in 1815. He now

pursued his investigations of nature with great ardor, and published the results in various scientific journals. In 1820 he discovered the chlorides of carbon, and in the year following the mutual rotation of a magnetic pole and an electric current. In 1823 he discovered the condensation of gases; in 1831, and following years, the development of the induction of electric currents and the evolution of electricity from magnetism.

The establishment of the principle of definite electrolytic action, the discovery of diamagnetism, and the influence of magnetism upon light, obtained for him, in 1846, the Rumford Medal and that of the Royal Society. In 1847 he announced to the world the magnetic character of oxygen and the magnetic relations of flame and gases.

When Mr. Fuller founded the chair of chemistry in 1833, Mr. Faraday was appointed the first professor. He then continued his investigations on the subject of electricity, and was led to the presumption that electricity, magnetism and light are but one and the same force, varying in effect according to circumstances, but obedient to laws which will one day be discovered. He also promulgated various theoretical views with regard to static induction, atmospheric electricity, the lines of force, both representative and physical, and latterly published several papers on the conservation of force, and on the division of gold and other metals.

He also delivered lectures to young people at the Royal Institution during Christmas time, in which he showed that the ease with which he descended from the heights of science, and conveyed to the minds of his youthful listeners the scientific principles of "common things," was not the least of his many gifts.

In 1835 he received a pension of £300 a year, from Lord Melbourne's government, in recognition of his important services to science. In the following year he was appointed scientific adviser on lights to the Trinity House, and was subsequently nominated to a similar post under the Board of Trade. He was chemical lecturer from 1829 to 1842, at the Royal Military Academy.

In 1823 he was made a corresponding member of the Academy of Sciences in Paris; in 1825 he was elected a Fellow of the Royal Society; and in 1832 the honorary degree of Doctor of Civil Laws was conferred on him by the University of Oxford. He was a Knight of the Prussian Order of Merit, of the Italian Order of St. Maurice and Lazarus, and one of the Eight Foreign Associates of the Imperial Academy of Sciences of Paris. In 1855 he was nominated an officer of the Legion of Honor, and in 1863, he was made an Associate of the Paris Academy of Medicine. Mr. Faraday was an elder of the sect called Sandemanians, and frequently preached in their chapel in Goswell Road.

Horticultural Notices.

OHIO POMOLOGICAL SOCIETY.

ANNUAL MEETING,

To be held at Sandusky, Wednesday, Thursday and Friday, Dec. 4th, 5th, 6th, 1867.

The annual meeting of this Association will be held as above, and from the reputation which northwestern Ohio has gained for the production of Apples and Pears, as well as Grapes, it is expected there will be a fine display of these fruits, and a large attendance of fruit growers on this occasion.

There will be discussion, as usual, on fruits and fruit culture, and the proposition for changing the name and constitution of the Society, to that of a STATE HORTICULTURAL SOCIETY, will be considered and acted upon.

All persons interested in fruit growing, or other branches of Horticulture, are invited to attend and participate in the discussions; also to bring or send samples of rare or choice fruits they may wish to have examined and reported on. Packages may be sent, by Express, to M. H. LEWIS, Sandusky.

It is expeeted that return passes will be granted by the several railroads to persons attending the meeting.

PROGRAMME FOR THE MEETING.

WEDNESDAY, *Forenoon.*—Salutations and arranging fruits. *Afternoon.*—Appointment of committees; Reports of Secretary, Treasurer and *ad interim* committee. *Evening.*—Address of Welcome by a Citizen of Sandusky, followed by the Annual Address of the President.

THURSDAY, *Forenoon.*—Reports of Committees, Discussion on Fruits by Catalogues. *Afternoon.*—Discussion continued. *Evening.*—Report on change of name and constitution; Election of Officers; Lecture on Entomology, by Dr. J. A. WARDER.

FRIDAY, *Forenoon.*—Reports of Committees; Discussion on Grapes and Grape Culture. *Afternoon.*—Training and Pruning the Grape; Closing Reports of Committees, etc.

J. A. WARDER, *President*

M. B. BATEHAM, *Secretary.*

Painesville, O., Nov. 12, 1867.

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